

American Journal of Orthodontics and Oral Surgery

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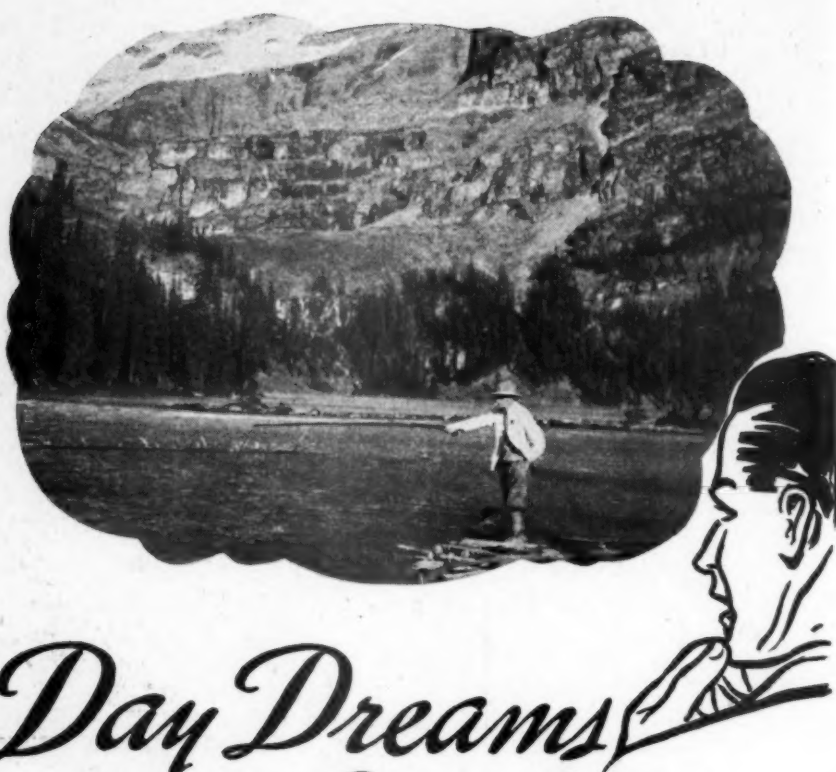
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JULY, 1947

Orthodontics

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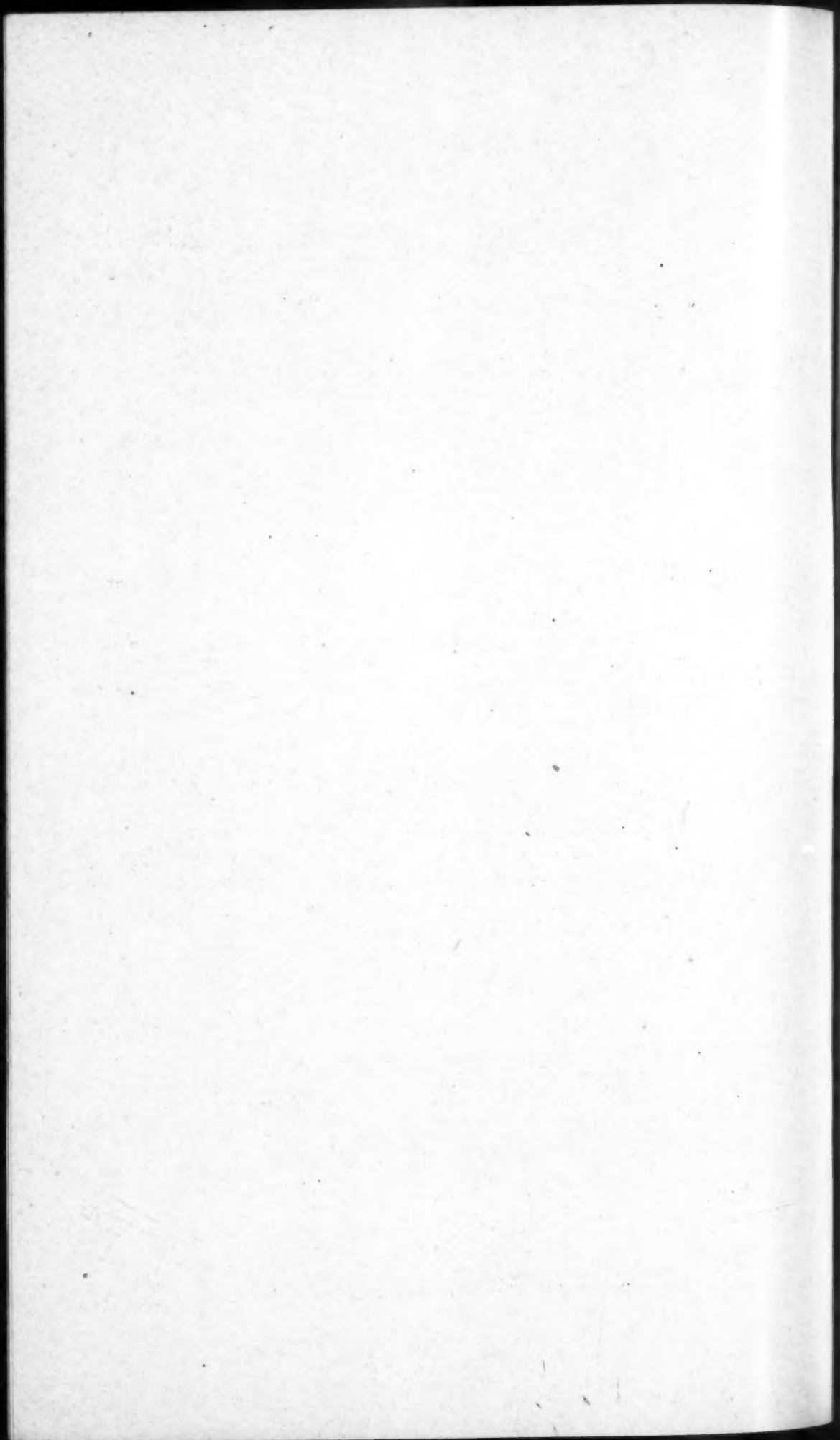
DENTISTRY FOR CHILDREN

Walter T. McFall

ABSTRACTS AND REVIEWS

J. A. Salzmann

Office of the Editor: 8022 Forsythe Boulevard, St. Louis
Published by The C. V. Mosby Company, St. Louis



American Journal of Orthodontics and Oral Surgery

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VOL. 33

JULY, 1947

No. 7

Original Articles

PRESIDENT'S ADDRESS

SOUTHWESTERN SOCIETY OF ORTHODONTISTS

BROOKS BELL, D.D.S., DALLAS, TEXAS

THROUGHOUT the country, orthodontics is confronted with a most serious problem—one that is going to be difficult to solve. This problem is that of graduate and postgraduate orthodontic education. Dental schools have done nobly in their attempt to accommodate all of those who have applied for admission to their graduate and postgraduate courses. Every school has made a particular effort to take care of the returning veterans.

One school that has done an exceptionally good piece of work is the School of Dentistry of the University of Kansas City, where Dr. W. Wayne White heads the orthodontic department. In addition to a well-rounded course of twelve months, during which time the students are taught the use of several types of appliances, they have also been privileged to hear outstanding men from all over the country in a series of seminar courses. During the course just ended, Dr. William R. Humphrey, Dr. Paul Spencer, Dr. George H. Herbert, Dr. Oren Oliver, Dr. Mark Perrin, Dr. Byron O. Hughes, and Dr. George R. Moore appeared before this class for seminar sessions on the various phases of orthodontics in which they are so proficient. The men graduating from the University of Kansas City School of Dentistry should have a well-rounded orthodontic education.

But to get back to the problem—Dr. White tells me that there were more than two hundred fifty applications to take this course and that they were only

Presented before the Southwestern Society of Orthodontists, Dallas, Texas, Feb. 3, 1947.

able to accommodate eight. Incidentally, those accommodated were veterans. It is very commendable that the Kansas City University School of Dentistry and the other dental schools throughout the country have made available such courses to the men returning from the service and are giving them such excellent instruction. The great number of applications to attend such courses was probably due to the fact that many of these men were still in service, or were just getting out of the service, when the various courses were starting.

Within a year, however, we will find that the same condition will exist pertaining to applicants to take graduate and postgraduate instruction in orthodontics that existed before the war—that is, these applicants will have to come from men in established private practices or men just graduating. This will mean that those men in practice (and they, as before, will make up 85 per cent of the applicants) must close their offices for a period of nine to twelve months and go to some University for their orthodontic instruction. This, of course, involves great expense in the loss of the income from practice as well as the actual expenditure involved in taking the course.

None of us wants to see the short-term course of ten to sixteen weeks return, though I venture that 90 per cent of us had our primary orthodontic training in such courses. Is it not feasible, however, for the dental schools to break down their courses into units so that instead of a continuous session it will be possible for those desiring orthodontic education to attend school four months and then return to their practice for a like period of time, return for the second unit of instruction of four months followed by a return to practice for the same period of time, and then return for the third and final unit of instruction.

The danger of such an arrangement, of course, is that after receiving two units of orthodontic instruction, students might be prompted to assume cases without completing the course. Possibly such action might be prevented if it became general knowledge that membership in recognized orthodontic societies would be obtainable only by persons who have been awarded a certificate for a completed graduate or postgraduate course in a recognized dental school.

Another approach to the problem might be that of setting up in each component society a teaching commission whereby a man would spend four months with one member of the commission and then return to his practice, come back in four months for another four months' session with another member of the commission, then pick up his practice again for four months, and finally come back for the final four months' session with a third member of the commission. This, of course, involves a great deal of additional work on the part of the members of this teaching commission, and also involves a highly personal element.

Prior to this meeting, I appointed a committee to try to work out some suggestions concerning graduate and postgraduate orthodontic instruction. This committee is composed of Dr. W. B. Stevenson, Graduate of Dewey's School of Orthodontia; Dr. W. Wayne White, Professor of Orthodontics at Kansas City University School of Dentistry; Dr. Fred E. Sims, Graduate of Northwestern University, Graduate School of Orthodontics; Dr. Clarence W. Koch, Private Instruction under Drs. Lischer and Brandhorst; Dr. George H.

Herbert, once associated with Dr. Lischer and past Professor of Orthodontics at Washington University. I have asked this committee to make a report to the Society at its Wednesday business luncheon.

A problem that is confronting dentistry as a whole is that of controlling the overnight specialization that has sprung up during the last four years. This has not been particularly true in orthodontics inasmuch as it has long been recognized that orthodontics is one branch of dentistry which requires not only unusual skill, but unusual knowledge which cannot be quickly acquired. The high standard of orthodontic training now existing has been brought about by the general practitioner's demanding that those specializing in orthodontics receive proper training over a period of nine to twelve months. In other branches of dentistry, however, it is possible to become a "specialist" in an unduly short time. I think, therefore, that we, as specialists in orthodontics, should work with the specialists in the other branches of dentistry and enact a specialists' law in our various states. Oklahoma is the first state in our Southwest to have such a law. A specialists' law would in no way prevent a man from becoming a specialist but it would make possible legal control of the amount of training he should have before he could announce himself as a specialist. This would work, of course, to the benefit of the public, inasmuch as they could be assured that every man announcing himself as a specialist was qualified as such.

One other piece of legislation that we, along with the pediatrician and eye, ear, nose and throat specialists, should sponsor is providing for excused absence for dental and medical appointments without the patient's being penalized by being counted absent or tardy. This law is already in effect in many states. I recommend that the Public Relations Committee take action to bring about such legislation in the Southwestern states.

I would like to suggest that those who have not been certified by the American Board of Orthodontics apply for certification. The Board is constantly striving to elevate the standards of orthodontics by the requirements it sets for those applying for certification. I particularly urge the younger men just starting in orthodontics to begin to prepare themselves for the Board. The requirement of the Board is that one must be in the exclusive practice of orthodontics for five years before he can apply for certification.

It is very gratifying that another member of the Southwestern Society of Orthodontists has been elected to the American Board of Orthodontics—Dr. Reuben E. Olson. Many feel that each component society should be represented on the Board, and thus make it truly national in its scope. This was evidently the plan Dr. Albert H. Ketcham had in mind when he was instrumental in bringing about the formation of the American Board of Orthodontics, inasmuch as the Board has seven members and there are seven component societies. We are proud to have our fellow member, Dr. Olson, represent us on the Board.

During the last few years, some of us have developed the habit of rushing madly to and from the office and frantically about the office. We have been so busy that we have lost the personal touch so necessary in the conduct of an orthodontic practice. We have forgotten that our patients are not just robots with irregular teeth implanted in their skulls, but are individual little person-

alities—thinking and knowing personalities—in their own right. We have rather mechanized our consideration of these youngsters and our treatment of them. Now, it is time for us to catch our breath and to again begin to treat our patients with affection and consideration.

Some may have the idea that this personal touch is a waste of time, that "it doesn't pay off." That it does "pay off" has been amply proved to our good friend, Paul Spencer. Since he has retired from active practice, he has received many letters from his ex-patients, now grown men and women, telling him how much they enjoyed coming to his office and having him treat them. One of Paul's personal-touch tricks was to play a game of "guess what" with his little patients. This game consisted of the patient's picking out an object in the room and then giving him the first letter of that object. One of his favorite stories concerns the 9-year-old girl who gave him the letter "s" and after he had guessed "screen, shadow, soap" and several other "s" objects in the room, disgustedly said, "ceiling, silly."

So, let's re-establish the personal touch in our offices and begin to enjoy our practices once again. Remember the Chinese proverb, "Enjoy yourself—it is later than you think!"

Many of us will recall the not-so-rushing days of 1929 and 1932 when we had plenty of time to catch up on our laboratory work. It seems to me that now would be a good time in which to prepare for the quieter years that may soon come by inaugurating some type of educational publicity in our newspapers and magazines such as is shown in the display in the exhibit hall by the Skillern Company, our famous drugstores here in Dallas. Please notice these advertisements, which have been run without cost to the medical and dental profession. It is my suggestion that we interest some national concern in the insertion of such educational publicity in national magazines and newspapers.

Along this line I might call to your attention the advertisements run by the Pepsodent Company, usually on a comic section page, which frequently feature some phase of orthodontics. These advertisements are appearing at present in the Shreveport Times and the Denver Post in this territory and will possibly appear in other papers. I contacted the Pepsodent Company concerning the publishing of these ads in more of our papers in the Southwest and received a very cordial reply from the head of the advertising department. The budget had already been set up for 1947, but I am quite sure that we will be able to interest the Pepsodent Company in inserting these ads in more of our Southwestern papers in 1948. I suggest that our Public Relations Committee and our Publicity Committee keep in touch with the Pepsodent Company and any other organization that might be interested in furnishing educational publicity on orthodontics.

Many will recall that years ago Dr. Martin Dewey, as President of the American Dental Association, had arranged with one of the larger insurance companies to run educational publicity pertaining to dentistry, just as the Metropolitan Life Insurance Company has been running educational publicity

concerning medicine for many years. I am quite sure that if properly approached there is still an opportunity for educational publicity on dentistry by one of the larger institutions. In fact, the field of general dentistry may be so completely covered by tooth paste firms, such as Pyclope, Ipana, Pepsodent, Lyons, Kolynos, Colgate, Calox, Listerine, and others, that one of these national organizations might be particularly interested in inserting educational material pertaining to orthodontics alone. Any such educational publicity would, of course, have to be under the direct supervision of the Society's Public Relations Committee.

The Oklahoma State Dental Society has offered a one-year scholarship in Dentistry to the winner of a state-wide contest conducted among the high school seniors. This is done with the purpose of attracting attention to dentistry and obtaining some young person to take up the study of dentistry. To arouse interest in orthodontics, the Southwestern Society might offer a year's graduate or postgraduate scholarship in orthodontics, that is, the tuition fee, to one member of all the senior classes in the dental schools in the Southwest. This choice of one senior student could be made by competitive examination. This would interest all senior dental students in orthodontics and provide good publicity for orthodontics.

At this time, I think it proper that we should pay tribute to the members of the Southwestern Society who served so ably and unselfishly in the armed forces. These men, R. T. Goldsmith, W. R. Alstadt, J. Victor Benton, Murray M. Hall, John W. Makeig, Charles F. Russell, Willis H. Murphey, Tom M. Williams, J. D. Peak, J. A. Rowe, E. B. Pulliam, H. S. Grohosky, Paul E. Gilliam, Otto L. Voigt, Marion A. Flesher, Marcus D. Murphey, Reuben E. Olson, have all now returned to practice and to active membership in our Society. The Southwestern Society is proud of these men for the services they rendered our country and is happy to have them safely back.

I want to take this opportunity of extending congratulations to the publisher of the AMERICAN JOURNAL OF ORTHODONTICS, The C. V. Mosby Company, and to the editor of that excellent journal, Dr. H. C. Pollock, for the fine work they have done during the past several years in continuing to maintain the high standards of journalism that have always prevailed in our JOURNAL. All of us realize that in the AMERICAN JOURNAL OF ORTHODONTICS we have the finest journal that is published for any branch of dentistry or medicine. The JOURNAL is recognized as outstanding not only nationally but internationally. Orthodontics is most fortunate to have such a publication.

I wish to make particular mention of the Dallas Gottlieb Study Group and the research they have been doing in histopathology. The group of some twenty men is under the supervision of Dr. Bernhard Gottlieb, who is professor of Oral Pathology and Dental Research at the Baylor University College of Dentistry. This group has been most instrumental in bringing to the attention of the dentists here in the Southwest various histopathologic findings and how these findings can be used in everyday practice. Dr. Gottlieb has definitely proved that caries is not the result of mouth acidity, but is the result of penetration of bacteria along the various approaches through the enamel. You will

see evidence of the fine work the Gottlieb group has been doing when they present their symposium on dental caries Tuesday afternoon.

I would like to bring to your attention the fact that our friend and honorary member, Dr. John V. Mershon and his delightful wife, Miss Harriet, celebrated their golden wedding anniversary on Nov. 5, 1946. I know that all of our Southwestern members are glad to extend felicitations to Uncle John and Miss Harriet on that occasion.

I cannot close my address without paying homage to my undergraduate and postgraduate teacher and friend, Dr. Oscar E. Busby. I have always been and shall always be thoroughly appreciative of his instruction, his ideals, and his philosophy.

I sincerely regret to announce the death of our friend and fellow member, Dr. B. J. McGinnis, on Feb. 2, 1947.

I thank you for the privilege of having served as your president. I sincerely appreciate this honor. It has been a real pleasure to have served as the head of our Society where everything is open and above board, cliques are unknown, backbiting is not practiced, and there is no closed shop. Our Society has been built up through the years on a spirit of friendship and friendly cooperation with the slogan, "If you can't say something nice about a guy—don't say anything." We must see that this spirit of friendly cooperation continues to be the basic principle of our Society.

No words the speaker spoke were quite
So welcome to the dozing,
So full of wisdom, truth, and light,
As "Now, my friends, in closing. . .

COMMITTEE REPORT ON PRESIDENT'S ADDRESS

PRESIDENT BELL'S cordial welcome has been exceeded only by the friendly hospitality which we have all enjoyed the last few days.

One of the main points of the President's address, if not the most important, is that of graduate and postgraduate orthodontic education. It is a regrettable fact that such a small number of those desiring these courses find accommodations available. While Dr. Bell in his address mentions one dental school in particular that is doing splendid work in orthodontic education, we feel sure that there are other schools that are facing this problem and are doing their very best to meet the rising demands for a sound education in this specialty. The answer to the problem must come from serious thought and study, and no one is better able to collaborate with the educational authorities than the present practicing orthodontist. He will have many valuable ideas and suggestions to offer as the result of personal experiences and observations.

We cannot concur with his suggestion pertaining to the formation of a teaching commission whereby a man might receive his orthodontic education and training by spending four months intermittently throughout a period of a year or so. Such a plan might be applicable to a few isolated cases but would not be practical on a large scale.

We would like to endorse his suggestion concerning the enactment by the various states of a "specialists' law." To quote from his address, "This would work, of course, to the benefit of the public, inasmuch as they could be assured that every man announcing himself as a specialist was qualified as such."

We also agree that proper steps should be taken whereby the children coming to our offices during school hours would not be penalized for being absent or tardy. His suggestion that this problem be placed in the hands of the Public Relations Committee is entirely proper.

Upon coming to that portion of his address in which he suggests that the Public Relations Committee get in touch with various commercial firms in the furtherance of orthodontic publicity, we feel hesitant to go along with Dr. Bell. So often we might find that the product of the firm carrying on this publicity program will not be endorsed by the American Dental Association. We feel that the Orthodontic publicity and education for the public layman should be kept in the hands of the orthodontist.

In closing, we wish to commend Dr. Bell on having prepared an address involving a great deal of thought and offering suggestions out of which will materialize some wonderful benefits to the specialty of orthodontics.

HAMILTON D. HARPER, Chairman,
W. E. FLESHER,
A. P. WESTFALL.

THE JOHNSON TWIN ARCH APPLIANCE

- I. THE PHILOSOPHY OF TREATMENT WITH THE JOHNSON TWIN ARCH APPLIANCE
- II. THE PROCEDURE OF TREATMENT WITH THE TWIN WIRE APPLIANCE

C. K. MADDEN, D.D.S.,* GREENWICH, CONN.

TEN years ago this month, a paper was presented before the Chicago Dental Society by Dr. Joseph E. Johnson on his twin-wire appliance. For several years he had used this mechanism for the correction of malocclusions of the teeth, and proved, by showing an unusual number of cases, that they could be most satisfactorily treated. His philosophy and procedures in treatment had been given to the profession before, but it was not until this time that the appliance received such enthusiastic attention. I recall, after the presentation of the paper, hearing the usual variety of opinions expressed. Some thought it just another appliance, others that the color photography was excellently done, but everyone had to agree that they had never seen presented more beautifully completed cases.

Those who branded it as just another appliance have been proved wrong, as there has been a constant increase in the interest and successful use of it by orthodontists in all parts of the country. Two hundred fifty orthodontists from all over North America recently went to Louisville for a review of Dr. Johnson's teachings and also to pay tribute to him.

What has caused this increase in interest in the appliance? The answer is, I believe, so many men have been shown, that it is quite universal in its use, as near so as any appliance; it will correct malocclusions with a gentle yet constant force, with a minimum of damage to the tissues; also, the appliance is easily constructed.

To better understand the philosophy or underlying principles, it is helpful to know what inspired the originator to devise such an appliance. I have heard Dr. Johnson say, many times, that it was his desire for an easy way to "straighten teeth" that led to the development of the twin-wire appliance. Recently, at the meeting of the Northeastern Society of Orthodontists in New York City, another Southern gentleman, now a Californian, Dr. Spencer R. Atkinson, said, "Being a lazy person, I am always looking for an easy way to do things." With all the contributions these two men have made to orthodontics, we cannot agree with them that they are lazy, but we can benefit from their calm, unexcitable approach to orthodontic problems. I also had a lesson in psychology while watching Dr. Johnson work on a patient. The child was complaining a little about the discomfort of having a band made and Dr.

Presented before the Southwestern Society of Orthodontists, Dallas, Texas, Feb. 4, 1947; also presented before the Cuban Society of Orthodontists, Havana, Cuba, March 7, 1947.

*Instructor, Division of Orthodontics, Columbia University.

Johnson said, "Honey, I am the laziest man in the world and you can be sure I wouldn't be doing this to you if it weren't necessary."

Other factors which are evident in making the mechanism a satisfactory one are the simplicity with which the parts can be constructed and operated and the ease in keeping the appliance clean. There are no sharp or rough parts to cause irritation to the tissues. Even though it looks rather fragile it is not often broken. Many parents and patients remark about the neatness of the bands and the labial arch. The light and constant pressure of the twin wires continues to work over a long period of time and produces as near to a physiologic tooth movement as is possible with an appliance. The twin wire arch, when placed in the buccal tubes on the molars, assumes a nearly normal arch form and the teeth are moved to conform to this arch. The flexibility of the arch makes it possible to move the teeth to the form satisfactory for the individual so as not to produce a stereotyped appearance.

All types of tooth movement can be accomplished and without root resorption. The forces of the mechanism are easily controlled by the operator. The appliance accomplishes easily the much desired opening of the bite in deep overbite cases.

The slight movement which is allowed with the type of lock and cap on the band makes effective an important auxiliary, namely, the anterior coil spring. Because of this lack of rigid attachment of the arch wire to the band, the gentle force of the coil spring makes possible any movement, including bodily movement, of the anterior teeth.

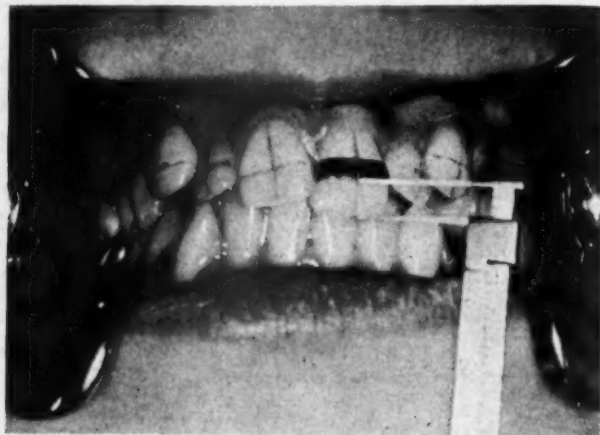
Soon after the presentation in Chicago, Dr. George Moore persuaded Dr. Johnson to give a course on his appliance at the University of Michigan and I had the privilege of being in the class. For about a year I used the appliance mostly for aligning the upper anterior teeth. A year later, Dr. Leuman Waugh arranged to have Dr. Johnson present his course at Columbia University, and, feeling I had much to learn, I took the course again. I told Dr. Johnson that I was using the appliance only to correct the anterior teeth after establishing proper molar relationship with another type of appliance. He informed me that in so doing I was missing one of the greatest assets of the appliance. He suggested that if I were courageous enough to use the appliance according to his philosophy, even though contrary to my earlier training, I would be well repaid by the results I would obtain. It was not easy to change my procedure and correct the position of the upper anterior teeth first and the molars later. My reason for telling you my experience is that many men have told me they do not believe it can be done so have never tried it. I want to assure you it can be done and if those of you who are using the appliance will follow as closely as possible the philosophy of the originator, you will have even more gratifying results.

The proper sequence and timing in the various steps are most important. I would like to show the procedure in treatment of the type of malocclusion which I believe comprises the greatest part of most of our practices. It is a type where extensive tooth movement is necessary, also, where the opening of the bite is desired, and where correct cusp interdigitation in the buccal segments

must be accomplished or normal function and retention is impossible. These Class II, division 1 cases are most satisfactorily treated with the twin-wire appliance.

The usual procedure is to band the upper four anterior teeth with the $\frac{3}{32}$ inch width bands. Unless the cuspids need tipping or rotating, they are not banded.

A.



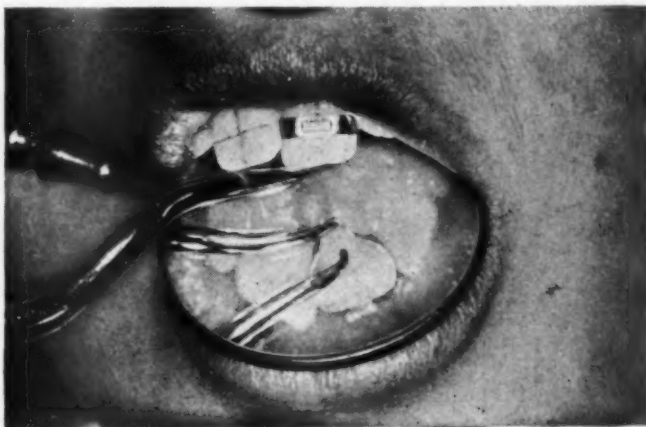
B.

Fig. 1, A and B.

Dr. Joe Eby has shown this method in marking the long axis of the tooth with pencil (Fig. 1, A). Then, by drawing a line at right angles to this mark, the position of the band will be indicated. After the first band is made, that one will serve as a guide for the positioning of the others. When maxillary cuspids are to be banded, it is advisable to band one to serve as a guide for the position of the bands on the incisor teeth. In order to obtain retention for a cuspid band, it is often necessary to fit the band high toward the cervical portion. If the incisor bands were not placed in a corresponding position, the cuspid might be excessively elongated (Fig. 1, B). A gauge like the one shown, or dividers, also aids in the proper placement of the bands during cementation.

The band is stretched over the tooth by placing a modified rubber dam clamp plier on the lingual of the tooth and against the band (Fig. 1, *C*). This forms a loop which can be flattened with a Howe plier and the joint is then soldered (Fig. 1, *D*).

C.



D.

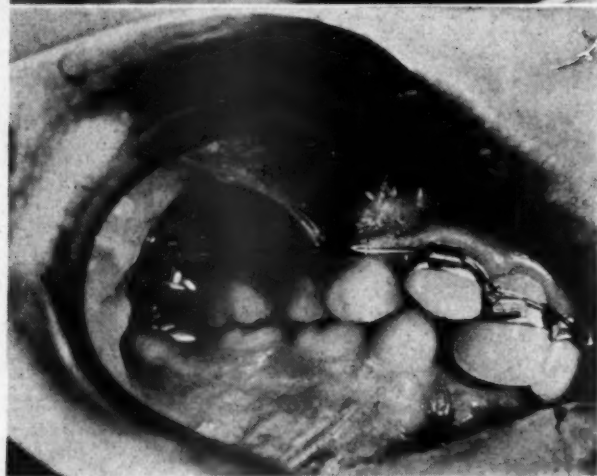
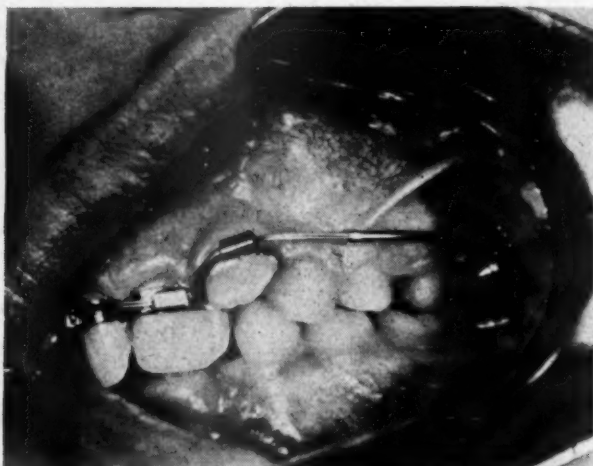
Fig. 1, *C* and *D*.

The bands, if correctly fitted, lie over the greatest circumference of the incisors with the locks at right angles to the long axis of the tooth. If this procedure is followed, the locks will all lie in the same plane when the teeth are in the correct position (Fig. 2). This is well demonstrated in this deep overbite case with mixed dentition. After correction, the locks, as shown, were all lying in the same plane.

After the bands have been properly placed, the first arch will probably require some crimping in order to place the twin wires in the lock. There will seemingly be no pressure exerted on the teeth but there is enough to start the movement. After about ten days, a new arch can be placed with less crimping. When the arch can be locked in with a minimum amount of distortion of the twin wires, an arch can then be placed with hooks for elastics. If the buccal

tubes on the molar bands have been properly placed, the end tube portion of the labial arch lies in a straight line and will slide freely in the buccal tubes. No attempt to stop this free movement, either by pinching of the tube or placing of coil springs, should be done. It is advisable to use a 0.035 buccal tube, as the larger ones allow too much play of the end tubes. Some men, when using buccal tubes of large inside diameter, such as 0.038 and 0.040, have found that the maxillary anterior teeth will elongate when intermaxillary elastics are being worn.

A.



B.

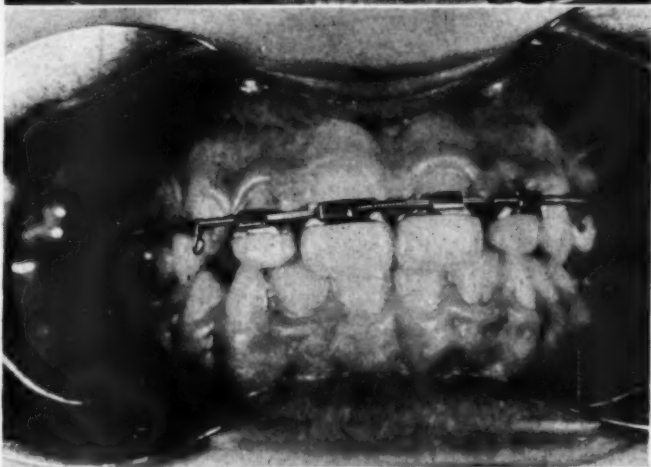
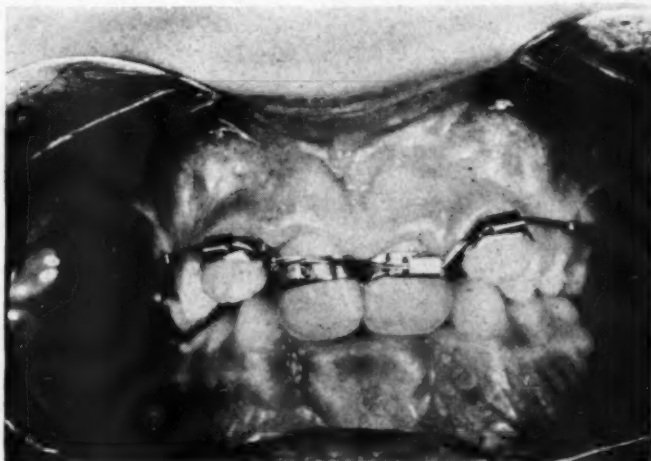
Fig. 2, A and B.

For several years I have been using the Johnson molar band. It is a continuous band made with a loop portion which aids in fitting (Fig. 3). They are made in five sizes, making it possible to fit deciduous molars as well as the largest permanent molars. The band is well contoured and annealed. The teeth must be well separated, so that when pinching the loop, the excess band material will be taken up, conforming the band to the tooth. Upper and lower molar loop band-forming pliers aid in the adapting of the bands to the teeth.

After the molar bands are soldered, they should be replaced on the teeth and a compound impression taken, well chilled before it is removed from the mouth. The bands must be accurately seated in the impression.

The proper placement of the molar buccal tubes is a most important part of the procedure, as the desired positioning of the anterior teeth can be attained only by having the twin arch lie correctly.

C.

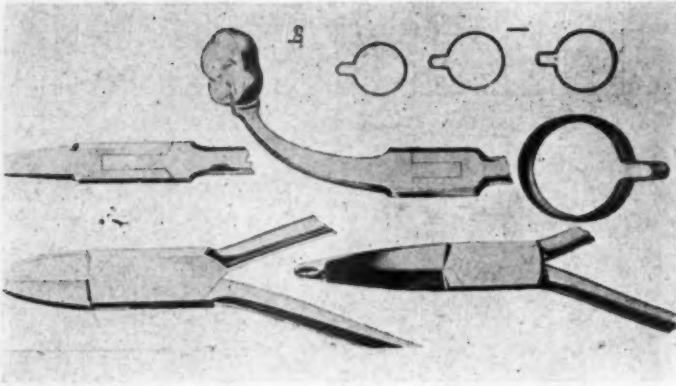


D.

Fig. 2, *C* and *D*.

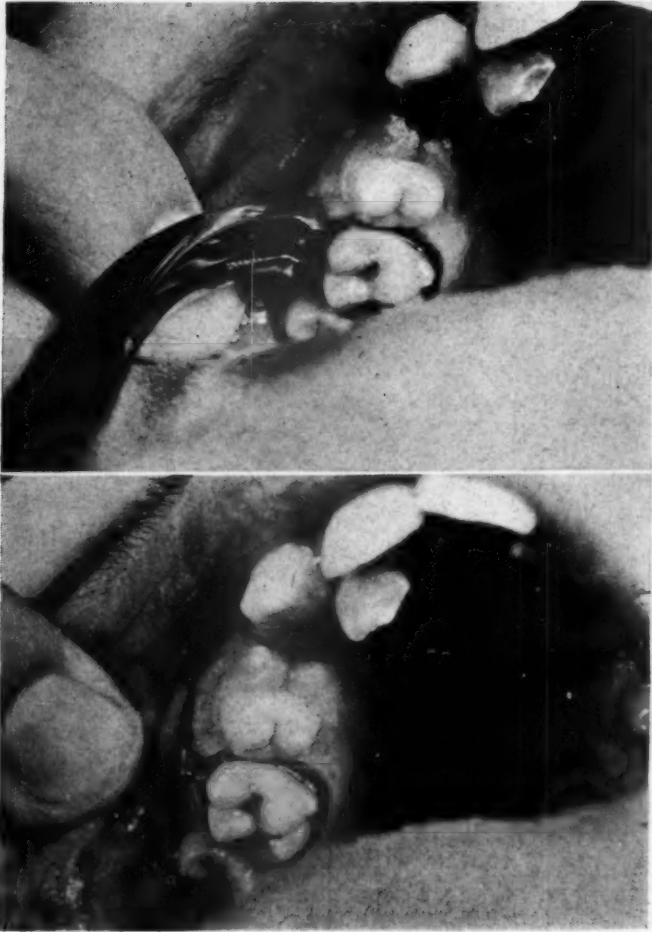
The lower lingual arch is so constructed that it lies close to the gingival margin of the mandibular anteriors with spurs between the cuspid and first premolar to help maintain the correct position of the lingual. The lingual arch should always be in firm contact with the anterior teeth to secure the anchorage when elastics are worn and to discourage the forming of any habits of lifting the arch with the tongue.

On the maxillary arch a lingual of this design is satisfactory in most instances (Fig. 4, *A*). It is shaped toward the palatal tissue and gives better access to the teeth for brushing. Auxiliary springs and spurs can be soldered



A.

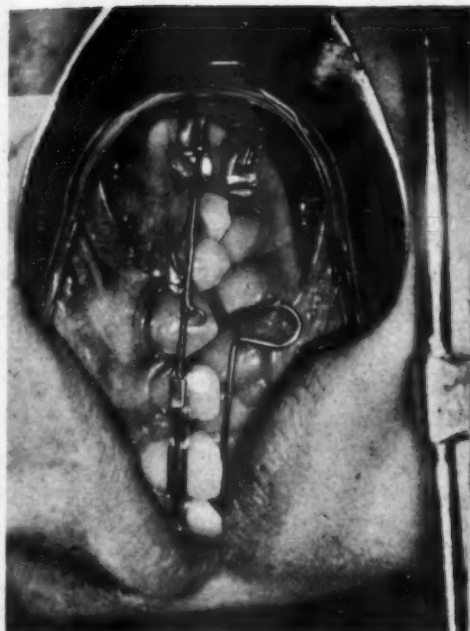
B.



C.

Fig. 3.

C.



D.



A.



B.



FIG. 4.

to the occlusal surface of the arch (Figs. 4, *B*, and *C*). If there is any tendency for a labial flare of the mandibular anteriors which might allow the lower lingual to slide incisally on these anterior teeth, I make a labial extension, soldered to the lingual like the one shown in Fig. 4, *C*. Keeping this anchorage well stabilized during the wearing of intermaxillary elastics is so necessary and important that too much attention cannot be given to it.

Passive anterior coil springs should be placed between the lateral incisors and the anterior portion of the end tube (Fig. 4, *B*). This will serve two purposes: (1) to prevent the end tubes from sliding out of the buccal tubes, and (2) to prevent a spacing between the maxillary central and lateral incisors as these teeth are moved distally with the intermaxillary elastics. Careful attention to the amount of elastic force is important in avoiding the undesirable flaring of the mandibular incisors. I found, when I started to test the elastics, that I was using much more force than I realized (Fig. 4, *D*). A measuring instrument of this type seems quite accurate for testing elastics, also coil and auxiliary springs.

There is another condition which occasionally occurs that will weaken the mandibular anchorage, but it can be easily corrected if given attention when it first develops. When the maxillary incisors are retruded by the elastics against the labial surfaces of the mandibular incisors, these teeth are frequently tipped distally and, as a result, the mandibular premolar moves buccally. This tooth should be ligated at once to the lower lingual arch to prevent it from moving out of the alignment. Those men who criticize the appliance, stating that in their hands it causes bimaxillary protrusions, will find carelessness in attention to maintaining this anchorage the cause in most instances.

If premolar expansion of the upper arch is indicated, an upper lingual is placed; otherwise not. Class 2 intermaxillary elastics which will exert a force of about three ounces are used until the maxillary incisors are carried back so they are in contact with the labial surfaces of the mandibular incisors. At this time, the coil springs, made by wrapping 0.009 inch hard stainless steel wire on a 0.032 inch core, are placed on the end tubes to complete the distal movement of the maxillary molars. Invariably, the maxillary molars will move distally as the maxillary incisors are retracted.

This is well illustrated in Figs. 5 and 6. Fig. 5, *A* shows the condition at the beginning of treatment. Fig. 5, *B* shows the same side after the anterior teeth had been moved distally. Coil springs have not been used, but the buccal segments have moved distally. Figs. 5, *C* and *D* are of the opposite side.

Fig. 6 shows a front view of the same case. Fig. 6, *A* shows the amount of overbite at the beginning of treatment and Fig. 6, *B* gives you an indication of the way the bite opens. This is especially true when an upper lingual is not indicated; that is, when expansion of the upper arch is not needed at least at the beginning of treatment. As the maxillary molars move distally, there is a tendency, at times, for them to move lingually also. If this does occur, placing of an upper lingual arch will prevent this tendency. If the patient is not conscientious about wearing the elastics and the coil springs move the maxillary incisors labially, it is then necessary to remove the coil springs and

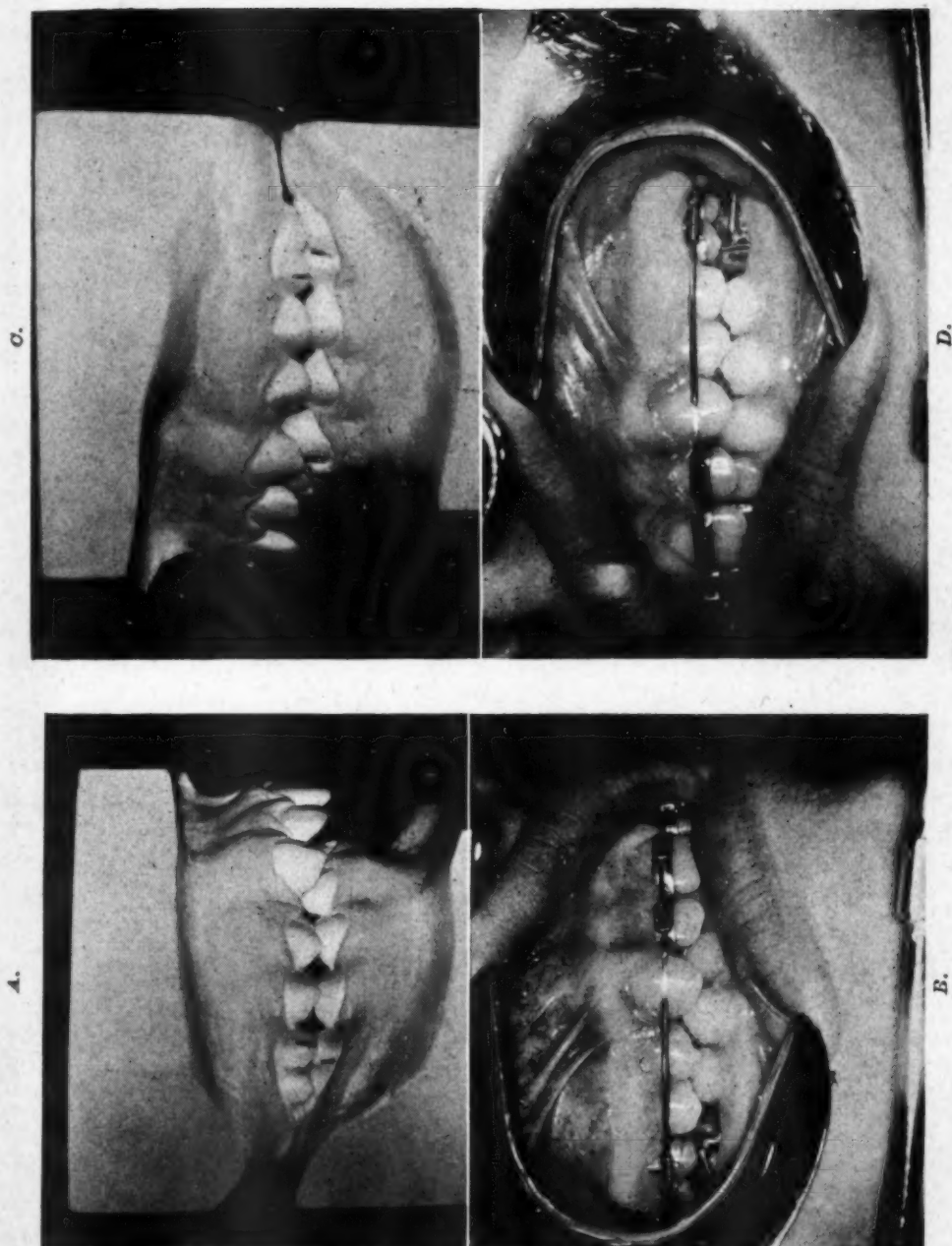


Fig. 5.

retract these incisors again. The coil springs should be about $\frac{3}{8}$ inch or $\frac{1}{2}$ inch in length. This measurement is made after the coil spring has been pulled out slightly and then placed back on the core and compressed. The coil springs are put into action by compressing them against the molar and pinching the end tube with a Young plier. The coil cannot slip past this flattened area. The intermaxillary elastic force should then be increased to four or five ounces. The maxillary molars are moved distally slightly more than their normal position and the coil springs are removed and a stop is pinched on the end tube to hold the molars distally. Elastics are then worn at night only.

Fig. 7 shows the buccal tubes properly placed on the upper molar bands, allowing the end tubes of the arch to lie in a straight line. At this point in the treatment, an arch is placed with hooks after having had a plain twin arch to start the alignment of the anterior teeth. You will notice that there are no coil springs on the end tubes or any stop that would prevent the end tube from sliding freely in the buccal tube.

In the front view, the arch is shown lying away from the premolars because in this case there was an upper lingual with recurved springs used for expansion (Fig. 7, A). Intermaxillary elastics were worn until the upper incisors had been moved distally. At that time, the upper lingual was removed and coil springs placed on the end tubes to complete the distal movement of the maxillary molars, elastics, of course, being continued. When moving the maxillary molars distally, occasionally the upper premolars do not follow the distal movement. When this happens, spurs can be placed when banding the premolar and elastics worn from the spurs to the molars. I have found the elastics which have been stamped out of rubber dam very satisfactory for this tooth movement.

In this case the cuspid has started to erupt and the incisors are protruded (Fig. 8). The procedure in treatment is to carry the incisors distally as is shown and then move the molar and premolars distally; then bring the cuspid into alignment.

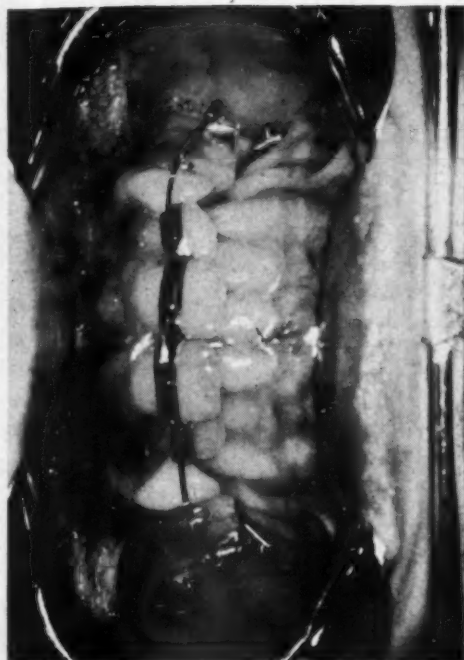
Elastics are practically always worn with this appliance during the stages of active treatment. In neutroclusion cases, intermaxillary elastics are worn. In unilateral as well as bilateral distocclusion cases, intermaxillary elastics are worn on both sides.

In deep overbite cases, it is helpful to have the arch lie gingivally to the bands so the arch when inserted will produce a desired change in the tooth position.

Fig. 9 shows the arch placed gingivally so that when placed into the locks on the bands, it will have a depressing action on the anterior teeth when these teeth are being moved distally. This must not be overdone because it is undesirable to have any binding of the end tube in the buccal tube or to cause tipping of the molars.

In some instances, the teeth are so irregular at the beginning of treatment that it is impossible or not advisable to seat the twin wires in the lock. These teeth can be ligated to the wires with a 0.010 inch ligature run through the lock and tied to the twin wires. In ligating to a banded incisor which is out

A.

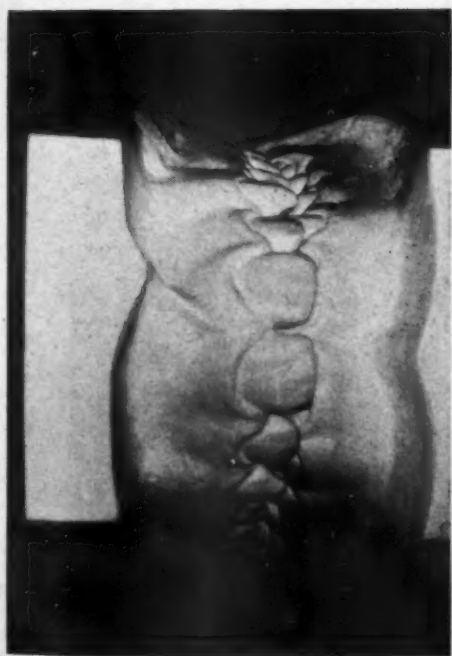


B.



Fig. 7.

A.



B.

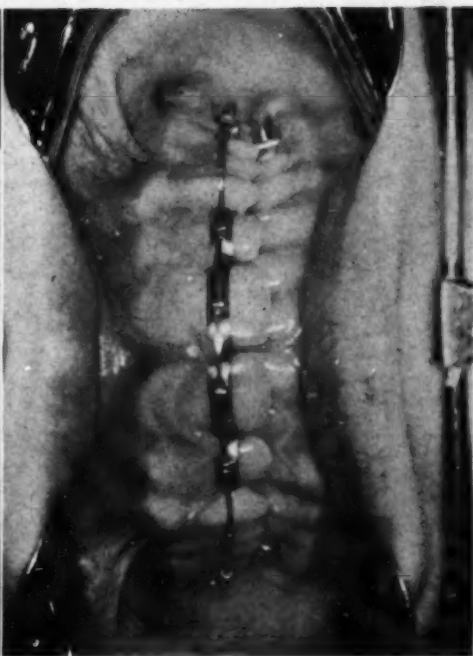
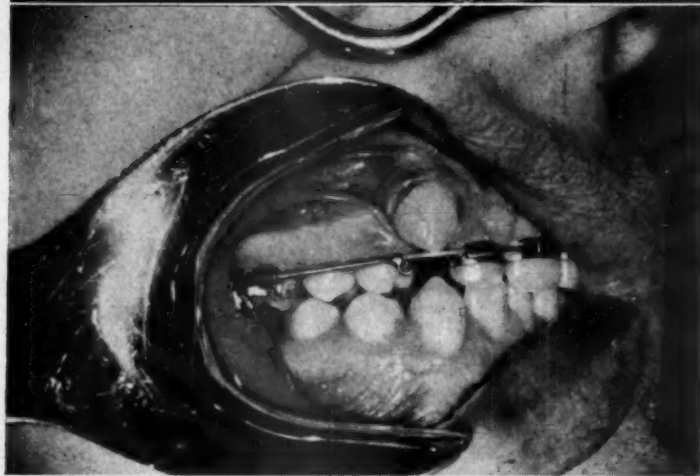
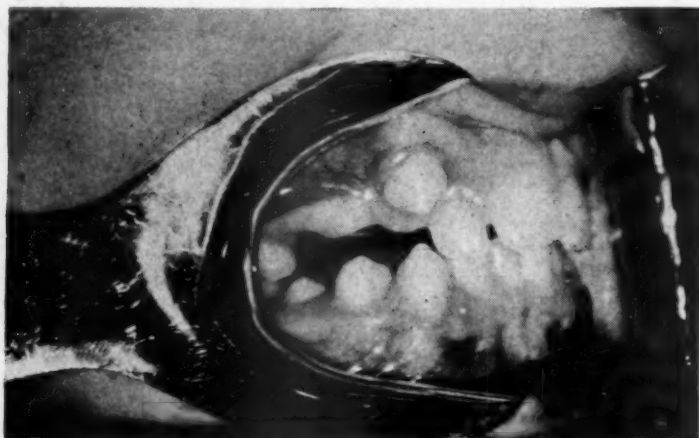


Fig. 6.

of alignment, considerable care must be used in order not to use too much force. In placing a cap, the twin wires are automatically crimped so the force is reduced, but this doesn't take place when a ligature is tightened. Frequently, a tooth is so badly rotated that it is not advisable to seat the twin wires completely. In order to avoid exerting too much pressure on the tooth, the cap or cover is seated only part way. After a few weeks, the tooth will rotate slightly and the cap can then be completely placed. In cases where a tooth is out of alignment and there would be difficulty in placing or removing the cap, the cap can be placed before cementing the band. A ligature can be run through the lock and the tooth ligated to the twin wires until such time that the cap can be removed and the twin arch seated in the lock.

A.



B.

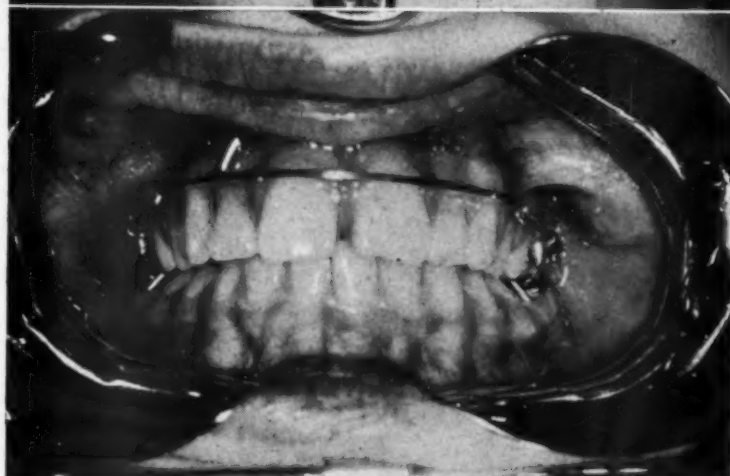
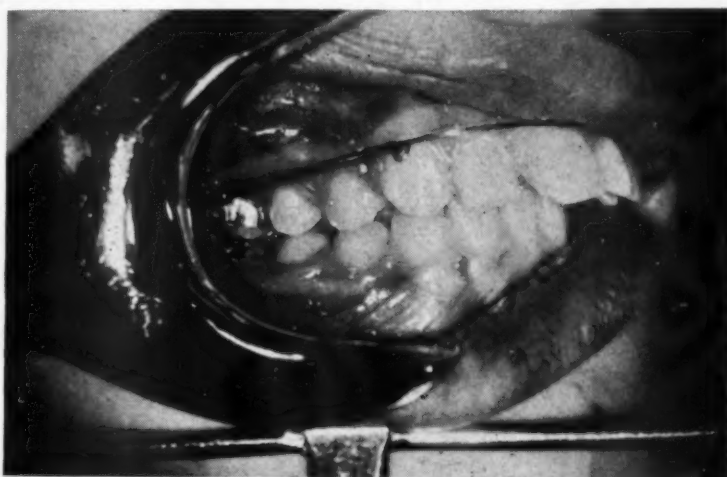
Fig. 8.

The desirable feature of the twin wires' having some freedom of movement in the locks is demonstrated in this case (Fig. 10). Excessive tooth movement, including rotation of the lower lateral incisors, was accomplished in this case without root resorption. I will give you a more detailed account of this case

when we are considering treatment. Bands with ligature holes in the locks were used and the teeth were ligated to the twin arch until the time when the arch could be placed in the locks. This adjustment of the adjoining teeth to allow a blocked-out tooth to come into alignment is probably due to the lack of rigid attachment of the arch to the band.

In open-bite cases, upper and lower teeth are banded and vertical elastics worn on loop spurs soldered to the caps.

A.



B.

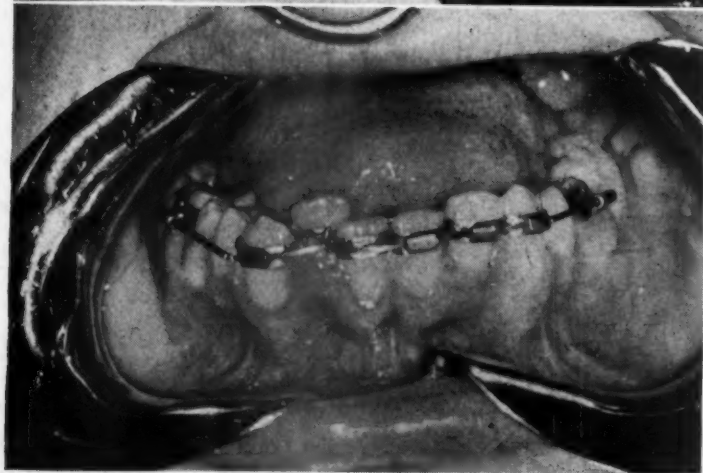
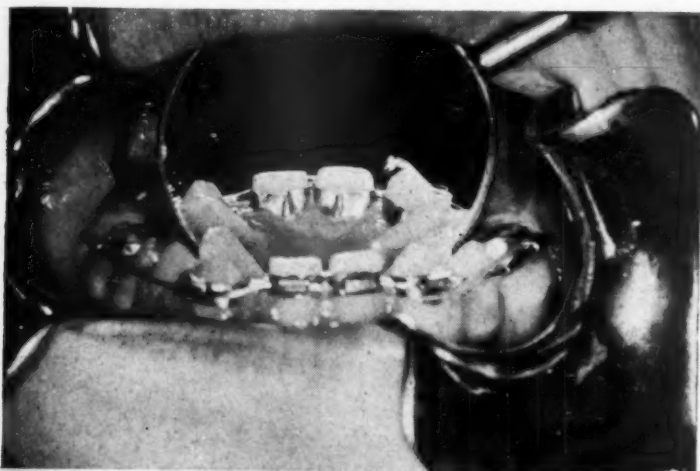
Fig. 9.

In this case, the buccal tubes were so placed that the arches were lying toward the incisal edges of the upper and lower anterior teeth (Fig. 11). The vertical elastics worn on the spurs produced a rather satisfactory result. There will be more on this case later.

The question is frequently asked, "How can molars be rotated with the twin arch?" I do not attempt to rotate the molars at the beginning of treatment. I have found during the distal movement of the maxillary molars and

the improvement of the functional relationship with the opposing molars that some rotation has been accomplished. If I find that more rotation is needed, I place a flat wire in the locks on the anterior bands to retain the incisor teeth. Now there are no end tubes in the buccal tubes, so the molars can be rotated by means of the removable lingual arch. Where the maxillary incisors are lingual to the mandibular incisors, they are banded and coil springs are placed on the end tubes. There seems to be a tendency for an open-bite to develop when correcting this condition. To avoid this, the buccal tubes should be placed so that the upper twin arch will lie incisively to the anterior bands. An upper lingual with spurs mesial to the maxillary first premolars serves as the anchorage, while the coil springs move the maxillary incisors labially.

A.



B.

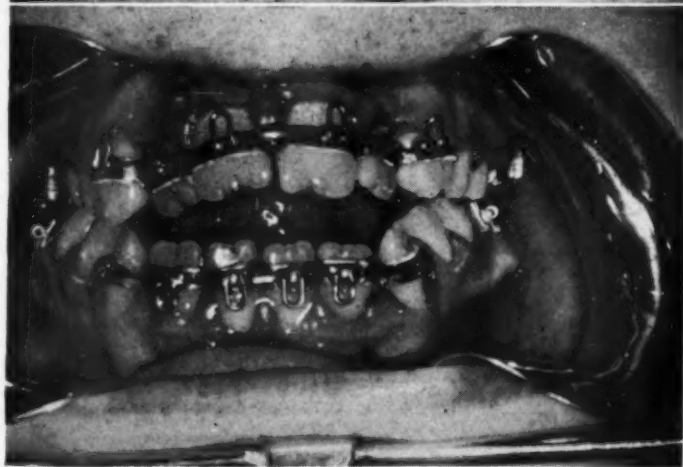
Fig. 10.

In those cases considered as bimaxillary protrusions, where two maxillary and two mandibular first premolars are extracted, one of two procedures may be followed (Fig. 12).

Fig. 12, A and B, illustrates the mechanism for distal movement of the mandibular cuspids. It is a sectional arch made by drawing a piece of flat wire,

0.010 by 0.022 into the end tube. This wire is crimped the same as the twin wires to bind it in the end tubes. The flat wire is placed in the lock on the cuspid band and held in place by the cap. The extension of flat wire mesial to the cap is shaped to allow the wearing of elastics. A lower lingual is placed to prevent the mandibular molars from moving mesially as intramaxillary elastics are worn. While the correction of the mandibular cuspid is being done, the maxillary teeth can be prepared by banding the six anteriors and the placing of an upper lingual arch. When the mandibular cuspids are in a satisfactory position, the mandibular incisors are banded and a twin arch with hooks is placed. The lower lingual is removed and Class 3 type intermaxillary elastics are worn. This is continued until the mandibular teeth are in a so-called ideal form. Our object in proceeding this way is that our mandibular anchorage will be more secure when we retrude the maxillary anteriors.

A.



B.

Fig. 11.

When the alignment of the mandibular teeth is satisfactory, a lower lingual is replaced and the end tubes of the twin arch are bound in the lower buccal tubes. We now have a satisfactory anchorage and can proceed with the distal

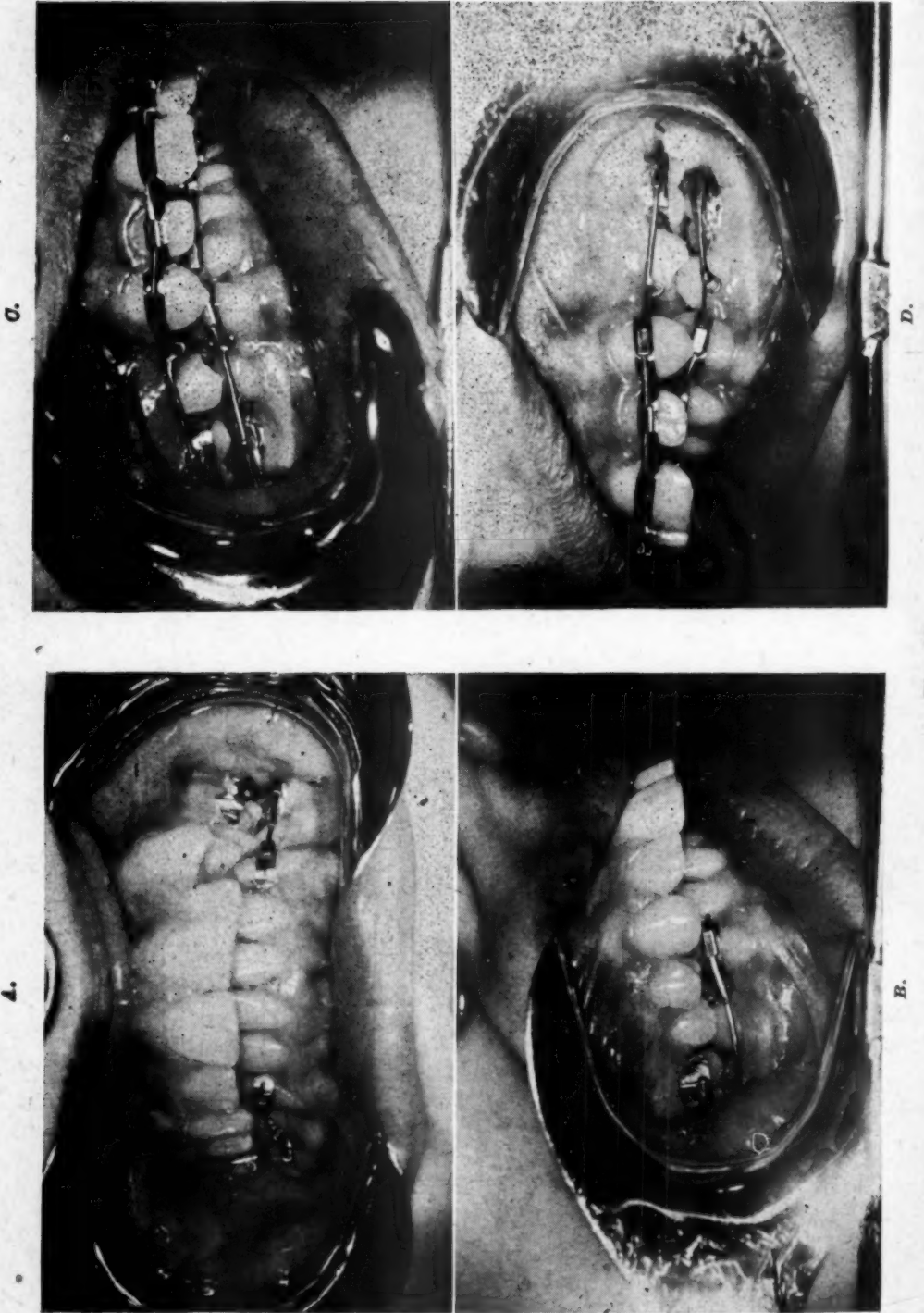


FIG. 12.

movement of the maxillary anteriors. Figs. 12, *C*, and *D* show how this is done. The upper lingual is removed and a twin arch with active coil springs is placed between the maxillary lateral incisors and cuspids. Intermaxillary Class 2 elastics are now worn to move the maxillary anterior segment distally.

The other procedure for moving the mandibular cuspids distally is to band the mandibular six anterior teeth, placing a twin arch with coil springs between the lateral incisors and cuspids. Intermaxillary Class 3 elastics are worn. The maxillary anchorage has been secured by an upper lingual arch and by binding the end tube of the twin arch in the maxillary buccal tubes. After the mandibular teeth are properly aligned, the procedure for the maxillary arch is the same as previously described.

These are more or less general rules for the procedure in treatment and follow the general principles or philosophy of Dr. Johnson.

22 LAFAYETTE PLACE

DISCUSSION

Dr. Nathan G. Gaston, Monroe, Louisiana.—Mr. President, Dr. Madden, members of the Southwestern Society of Orthodontists, guests—I want to express my appreciation for being allowed the privilege of opening the discussion on this subject and to thank Dr. Madden for a most excellent paper which was superbly presented.

Before actually getting into the examination of this paper, I wish to make it clear that I am not an authority. In fact, I'm not sure that I know exactly what makes an authority, unless it is the general and individual opinion of a group as to the knowledge and ability of an individual along some certain line. Not being an authority, I am presuming that any errors I may make in analyzing the subject will not cause any essential trouble or embarrassment to anyone, but rather will be recognized as the purely personal opinion of one individual.

With Dr. Madden's permission, I am assuming the liberty of putting a rather broad interpretation on the subject under discussion. I am assuming that when we speak of the Johnson twin wire appliance we have reference not only to Dr. Joseph E. Johnson's original appliance and the philosophy of treatment with it, but, also, to changes and additions, or accessories, that may have been added not only by Dr. Johnson, but by others as well, that tend to carry out and elaborate the use and application of this technique. In other words, I feel that we are not concerned so much with any one specified attachment made by a special manufacturer, but rather are interested in any and all attachments and appurtenances thereto of any manufacturer that lead to the more complete fulfillment of the theories making up the philosophy of treatment with this technique.

It is interesting to me to note that Dr. Madden's original use of the appliance was prompted by the same thoughts that caused us to take up its use, that is, the alignment of the upper anterior teeth. We first used the appliance in 1935, and for quite some time thereafter its use was restricted entirely to corrections of rotation and alignment of the anterior teeth. As Dr. Madden intimated, it took considerable courage to adopt Dr. Johnson's complete theory. It not only took courage to try it, but it took a lot of disappointments to prove that Dr. Johnson was right. For some time after our first introduction to the appliance, we attempted to use the mechanism itself, but only to use it in the generally accepted manner of other labial appliances. We tried at varying times to move the entire upper arch distally; we tried to move the molars back, and then the anteriors; we tried sliding hooks of various types; and after months of disappointments and distress, we finally realized that maybe Dr. Johnson was right after all. Since that time we have adhered rather closely to his original theory, especially in the treatment of Class II, division 1 cases. It is embarrassing to me to admit that after eleven years of the use of this appliance as Dr. Johnson taught it, I still don't know exactly why it works better his way than some other way; but I do know definitely that it does. The retrusion of the upper anteriors to the extent that

some of the buccal teeth are crowded out of line seems very definitely to give a much stronger, much more stable anchorage for the distal movement of the molars and premolars.

There is one thing that now and then gives us difficulty in treatment of this type of case, and I am wondering if possibly Dr. Madden has run into the same thing, especially if he has found an answer as to its cause and a simplified method either of preventing it or correcting it. I am speaking of those cases in which now and then the bite will open too much, especially in the premolar region. This condition seems to take place after the anteriors have been retruded and the distal movement of the molars started. At first I thought that the excessive crowding of these buccal teeth, caused by the retrusion of the anteriors, was forcing them into an infraclusion. However, after watching several cases of this type, I do not believe that this is so because the opening of the bite, in the premolar region, does not seem to take place until the actual distal movement of the molars has started. I am wondering if, in moving these upper molars distally, they are failing to follow the natural upward curve of the curve of Spee, and instead are moving horizontally, distally and, thereby, with the possible slight extrusion of the lower molars, are bringing about this condition. It has been suggested that a possible tipping of the upper molars is throwing their mesial cusps below the line of occlusion and that this is the actual cause. However, study of several cases of this type disproves this theory, as there is not any apparent excessive tipping of these teeth. I would appreciate hearing Dr. Madden's theories on this matter. It is not my intention to discuss the actual construction of the appliance because the matter has been most adequately covered. However, after years of use, we have found several slight changes or additions to the appliance that materially improve or simplify its use and application.

For years we were disturbed by the occasional case which suffered very severe pain and discomfort for a day or two after the initial application of the arches, and we attempted in various ways to alleviate the condition which, of course, was especially noticeable in those cases with severe rotations and angulations of the anterior teeth. We tried crimping the arch wires to the extent that we felt they were almost passive in the brackets, and yet we would still have this discomfort. Those teeth that were badly rotated or badly out of line we ligated to the arches with ligature wire, and found that we had almost as much pain and suffering as if we had completely seated the appliance. Dr. Johnson, in one of his earlier papers, published in the *Journal of the American Dental Association* 19: 997-1011, 1932, and again in a paper in the *AMERICAN JOURNAL OF ORTHODONTICS AND ORAL SURGERY* 24: 303-327, 1932, suggests the placing of only one of the twin wires in the bracket of badly displaced teeth to obviate the pain and discomfort of which I speak. We found that this did not work out very successfully, as quite often the remaining wire would buckle out and cut the cheek, or in some other manner lead to discomfort as annoying as the original cause. After quite a bit of experimenting, we finally adopted, for routine use in our office, what we term a single twin arch. It is nothing more or less than the regular arch with one wire removed. At first we very carefully cut out the second wire, but it wasn't long until we adopted the simplified one, as shown in Fig. 1.

A single 0.010 wire is run through the buccal sections, without any coil springs, and the ends turned back on itself, as at *A* in Fig. 1. These ends are tucked into the tubes, as at *B*, and the arch pulled in a regular arch puller to give us the finished arch at *C*. In our office, a stock of these is kept made up ready for instant use. Incidentally, we have found that there is considerable saving of time and a little more accuracy in pulling the arches, both the single twin and the regular twin, at the chair to their proper dimension, rather than keeping a variety of sizes already made up. In other words, we keep just one stock size made up, which is usually about one and five-eighths inches across the anterior section. It is then pulled to its proper length at the chair and measured by laying the arch itself across the patient's teeth. We find this considerably more convenient than measuring around the patient's mouth with a piece of string or other method.

This single wire arch was originally used only on those cases that presented extreme irregularity of the anterior teeth, but after considerable months of use, we now find it advisable to start practically every case with it. It never causes the patient any discomfort, and it is surprising the amount of movement that can be obtained with it, especially in those

types of cases, as shown in Fig. 2, where there is considerable angulation or displacement of the teeth.

One of the most convenient accessories to the use of the twin wire arch that we have found in our office is what we term the swivel hook. In all the writings and discussions of the Johnson twin wire appliance, there is considerable time and explanation spent on how to align properly the hooks for the intermaxillary elastics. Several years ago, we became disgusted with the nuisance of this construction and, after some period of experimentation, finally evolved a hook that will slip on the end section of the arch and is free to turn completely around the tubes as shown in Fig. 3.

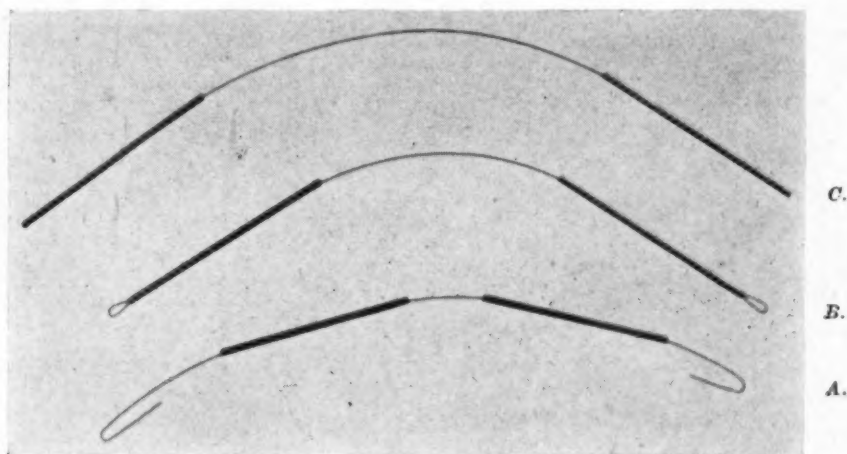


Fig. 1.

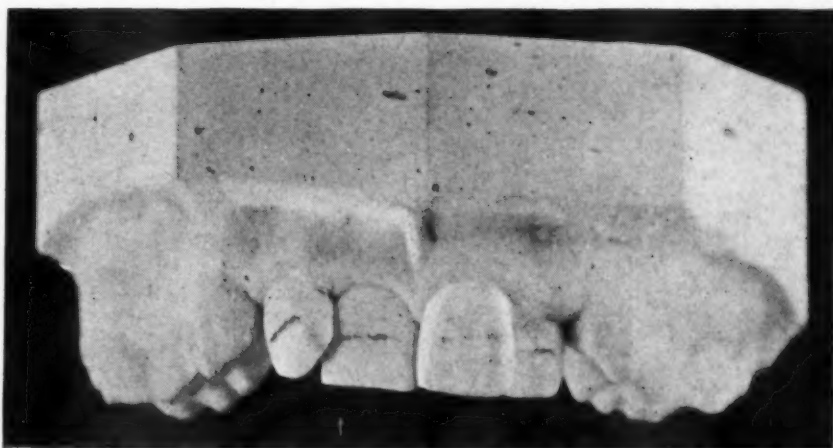


Fig. 2.

In addition to the fact that it does not require alignment, it has several other most useful advantages, one of which is the fact that intermaxillary elastic pressure can be adjusted to exactly the amount desired. This is done quite simply by merely pinching the end section at the point that will allow the elastic to stretch the desired amount. This pinch is not usually made until the appliance is in the mouth, so that the exact location of the hook can be most accurately determined. We usually start our little patients with very slight intermaxillary pressure and gradually increase this pressure by pinching the tube behind the hook a little bit further anteriorly as we go along. You will notice, in Fig. 3, two pinch marks between the hook and the coil spring. One of these, of course, is for regulation of the coil spring pressure and the other is for the proper location of the hook.

These hooks are quite simple to make, and a large stock of them is kept on hand at all times. Incidentally, they can be used over and over again, merely by removing them from the old arch and placing them on a new one.

Figs. 4 and 5 show the simplicity of the hook construction. In Fig. 4, Part A is a simple wire jig for holding a piece of 0.036 inside diameter tubing and a piece of 0.030 wire in proper position for quick soldering. As each hook is soldered, it is cut the approximate length, the tube slid forward three or four millimeters, and another hook soldered. It is usually a good idea to solder six or eight hooks and then polish them all at one time in an anodic polisher. You will notice there is a piece of 0.036 wire pushed into the tubing. This is done to prevent excessive corrosion inside the tube while soldering. Otherwise the inside wall of the tubing would have a built-up oxidation on it to the extent that it would not slide on the buccal section.



Fig. 3.

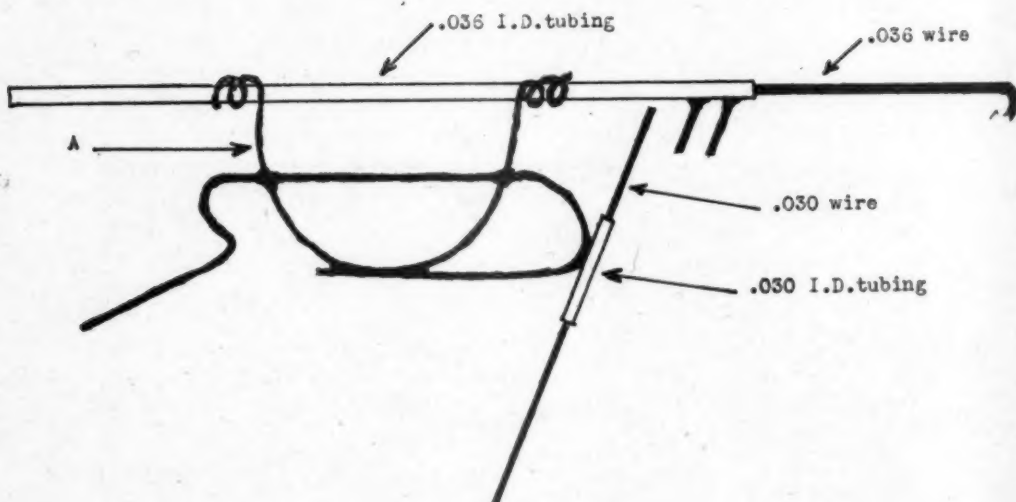


Fig. 4.

Fig. 5 shows a piece of tubing with three hooks soldered in place, polished, and ready to be cut off. Immediately under it, you will see a few hooks that have been bent to shape and cut off.

If you will refer to Fig. 3, you will notice that the coil spring has a tightly wound section at one end. This is done to prevent the spring from threading itself past the pinch marks, and thereby changing the pressure exerted. I wind these springs myself in my home workshop on a screw cutting lathe. However, if you are fortunate enough to have a machinist friend, he can wind enough to last you several years for a cost of a very few dollars.

Fig. 6 shows a section of spring that has been wound. We usually make these sections approximately ten or eleven inches long and then cut off each spring as we need it. It is wound on a 0.033 core with considerable tension so that when it is removed from the core it opens up exactly the right amount to slide freely on the end section and yet it is close enough that it cannot possibly slip past the pinch mark. The wire is 0.008, and is machine

wound with the threading gears on the lathe set to give a spacing of approximately 0.010 or 0.012 between each coil. As the lathe carriage moves along, the threading lever is disengaged every half inch for four or five revolutions to make the tightly wound sections. These sections, of course, do not open up quite as much as the spaced portion of the spring and, consequently, give a little closer fit right at the pinch on the tube. Incidentally, you will find that the machine wound spring is absolutely uniform, and will *always* exert *exactly* the same pressure per inch of coil, whereas the spring that has been pulled out by hand will vary considerably from spring to spring.

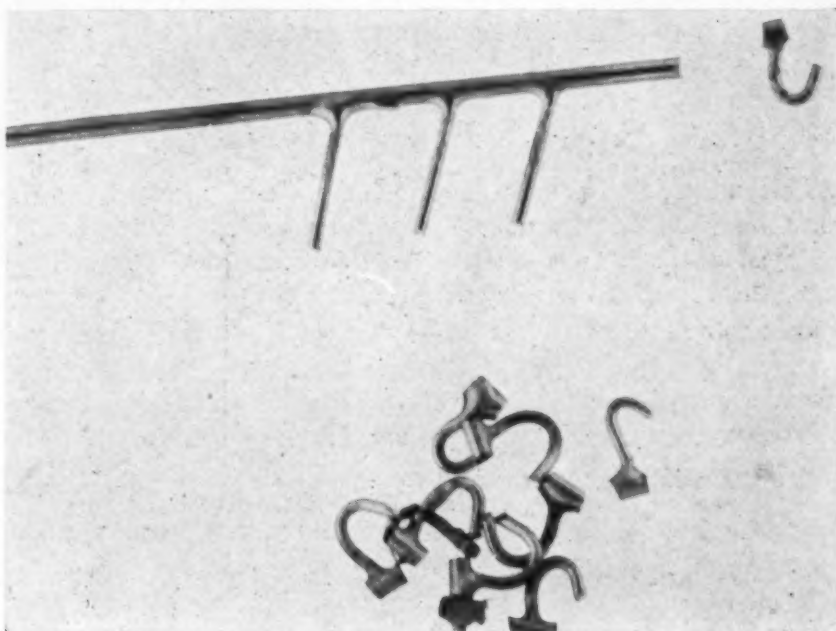


Fig. 5.

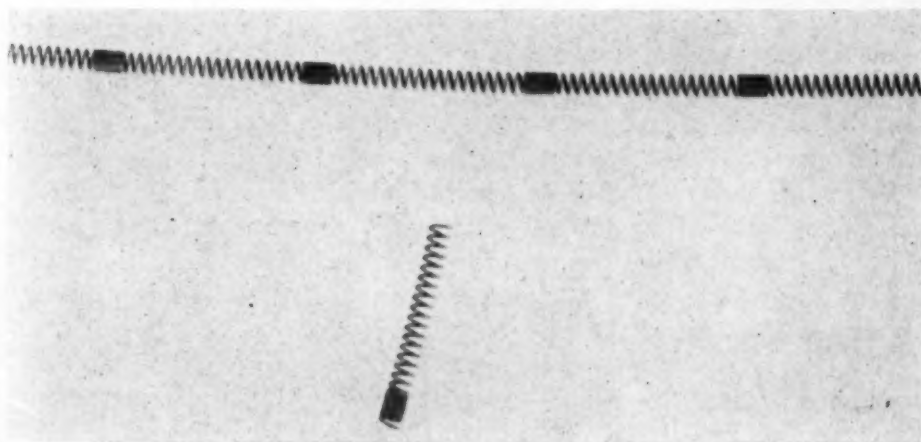


Fig. 6.

It has been my pleasure to open the discussion on Dr. Madden's paper and it is hoped that those of you who have been using the twin arch technique will enter into the discussion so that we may all benefit from this exchange of ideas.

To those of you who have toyed with the idea of using this technique, but have never done so, I want to assure that its adoption will give you a great deal of pleasure and satisfaction.

THE JOHNSON TWIN ARCH APPLIANCE

III. THE TREATMENT OF VARIOUS TYPES OF CASES USING THE JOHNSON TWIN ARCH APPLIANCE

C. K. MADDEN, D.D.S.,* GREENWICH, CONN.

IN THIS second paper, I want to show a few cases of a different type which, I feel, have been treated with fairly satisfactory results. They are not perfectly done but most of them have a good functional and aesthetic result and the retention of them has not been a great problem.

I am not going into great detail in telling you how I arrived at my diagnosis nor the many other explanations of detailed case reports. I believe all of you are most interested in the timing of the various steps and it is this information that one can hear over and over again. In the past eight years I have heard Dr. Johnson give his lectures about ten times. Each time I have obtained valuable information and have been more impressed with the importance of correct procedure.

Fig. 1, Case 1, girl, aged 10 years, 6 months. The condition was diagnosed as a bilateral distocclusion with a deep overbite, a protrusion of the maxillary incisors, and a linguoversion of both mandibular right premolars. Johnson bands were placed on the maxillary incisors; an upper lingual was not placed as expansion of the maxillary arch did not seem to be indicated. A lower lingual with an auxiliary spring was used to move the right premolars buccally. This condition was corrected before starting intermaxillary elastics. The maxillary left central incisor had been fractured and an acrylic jacket placed on it. The band was placed on the jacket without difficulty. The maxillary incisors were moved distally, and, during this procedure, the bite opened and the maxillary buccal segments moved distally also. After the maxillary incisors were retruded until in contact with the labial surface of the mandibular incisors, the coil springs were placed on the end tubes and the intermaxillary elastics continued, being sure that the pressure of the elastics was about two ounces more than that of the coil springs. Probably because a maxillary lingual was not used, the buccal segments had been moved distally to such an extent, during the retruding of the maxillary incisors, that only slight movement by the coil spring action was necessary.

We can see how thin the jacket is and before treatment was started it had to be recemented about once a month. I anticipated some trouble when placing

*Instructor, Division of Orthodontics, Columbia University.

Presented before the Southwestern Society of Orthodontists, Dallas, Texas, Feb. 4, 1947; also presented before the Cuban Society of Orthodontists, Havana, Cuba, March 7, 1947.

a band on it, but the jacket didn't come off during the twenty-two months of treatment. I started elastics on this case the same day I cemented the bands. I thought it important to get the bite to open as soon as possible and this relieved the stress on the jacket. A lingual is being used for the mandibular retention and an upper Hawley retainer.

Fig. 2 (side views) shows the condition before and after treatment. Notice how well the cusps are related—the functioning of teeth in this position helps very much with retention.

A.



B.

Fig. 1.

Fig. 3, Case 2, girl, aged 11 years, with a bilateral distocclusion with retrusion of the maxillary central incisors and marked protrusion of the maxillary lateral incisors, class 2, division 2.

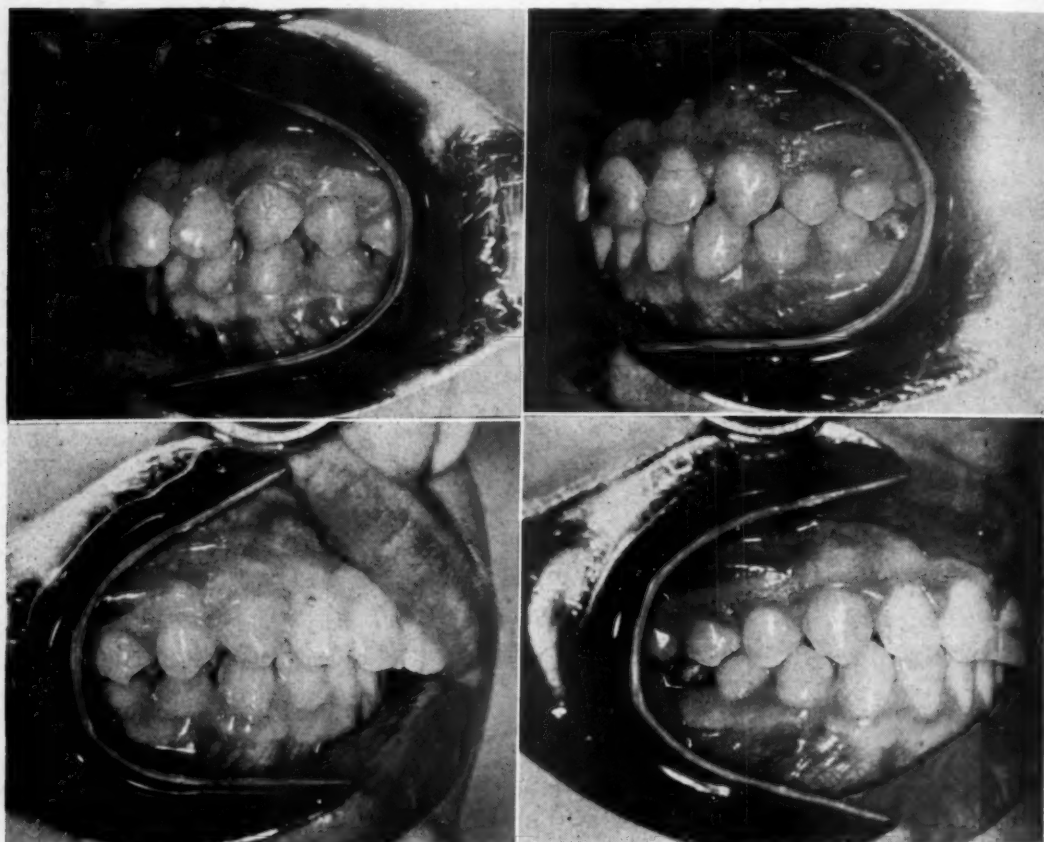
A lower lingual was placed, the upper four anterior teeth banded with Johnson bands, and a twin arch placed. Due to the position of the teeth, considerable crimping of the twin wire was necessary. After two weeks, a new twin arch was placed with hooks and coil springs on the end tubes. Coil springs for distal movement of the molars can be used early in treatment in this type of malocclusion because the maxillary central incisors are retruded and against

the labial surface of the mandibular incisors. An upper lingual was not used as this is not indicated when the molars are being moved distally with coil springs.

The bite opened at the same time the distoclusion was corrected. Retainers were made after eighteen months of active treatment. The degree of overbite is quite apparent in the side view at the beginning of treatment. The front view shows this nicely corrected.

A.

B.



C.

D.

Fig. 2.

Fig. 4, Case 4, patient aged 15 years. The molar and second premolar relationship was nearly normal but all four cuspids were blocked out of alignment probably due to a bimaxillary mesial drift of the buccal segments. The four first premolars were extracted. Johnson bands were placed on the mandibular cuspids and a sectional arch placed from each cuspid to the molars. The arch was made by drawing a flat wire of 0.010 by 0.022 gauge into the end tubing just as the twin wires are drawn. A short extension of the flat wire mesial to the cap on the cuspid serves as a hook for the wearing of an elastic band to the buccal tube on the maxillary molar. A lower lingual was placed to prevent any tendency for the mandibular molars to move mesially. An upper lingual served as anchorage of the maxillary arch. No attempt was made to move the maxillary cuspids distally until the mandibular alignment was satisfactory.

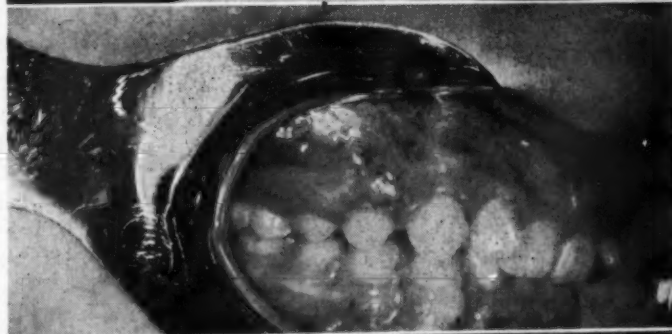
A.



B.



C.

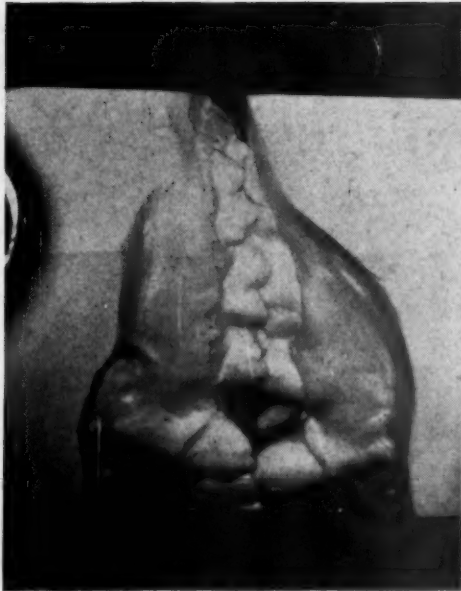


D.



Fig. 3.

a.



D.



A.

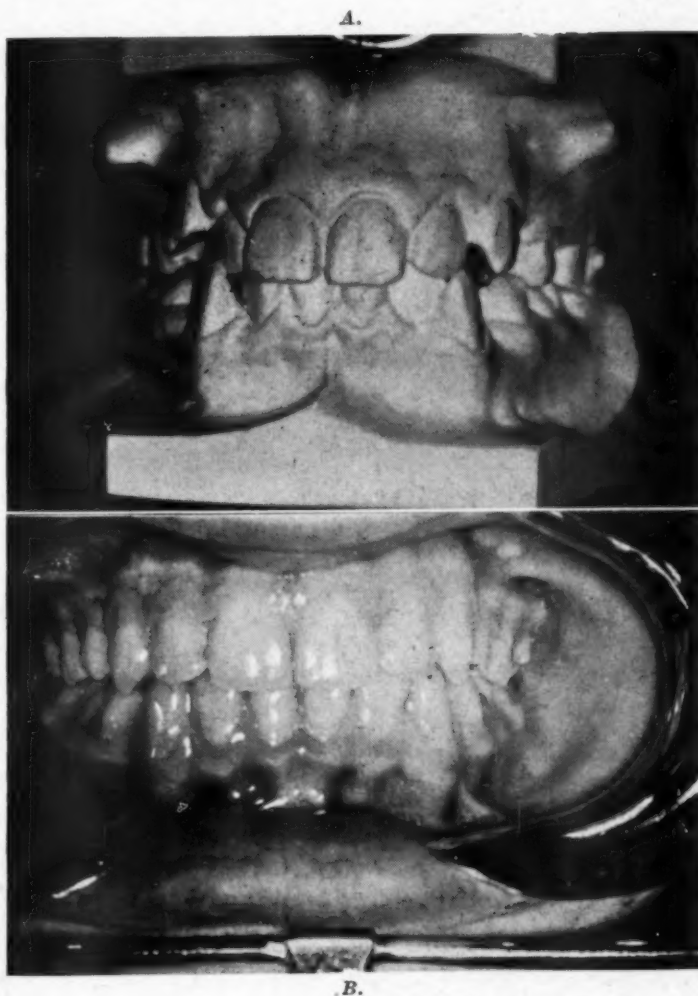


B.



Fig. 4.

The maxillary six anterior teeth had also been banded with Johnson bands and a twin arch placed. The buccal tubes were pinched on the end tubes to help secure the maxillary anchorage while the lower alignment was being obtained. The cuspids were moved distally so that about two-thirds of the obtained space was used. The mandibular incisors were then banded and the twin arch placed.

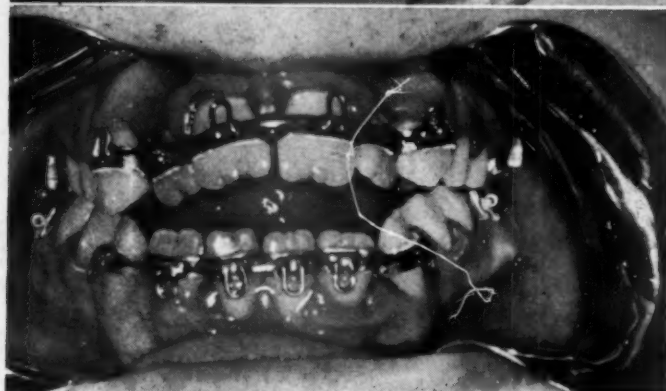


B.
Fig. 5.

The maxillary cuspids were moved distally by anterior coil springs placed between the lateral incisors and the cuspids. Elastics were worn from hooks on the end tubes of the maxillary twin arch to the buccal tubes on the mandibular molar bands. I will admit that the result is not a perfect one but is being retained, as shown in the figure, after a year without appliances. The teeth seem to be in a good functional position and aesthetically the result is pleasing. This has been accomplished without too laborious a procedure and was done in twenty-two months of active treatment on a boy whose cooperation was not good.

Fig. 5, A shows the front view at the beginning of treatment. Fig. 5, B is a recent photograph and the patient has been without retention for a year.

A.



B.

Fig. 6.

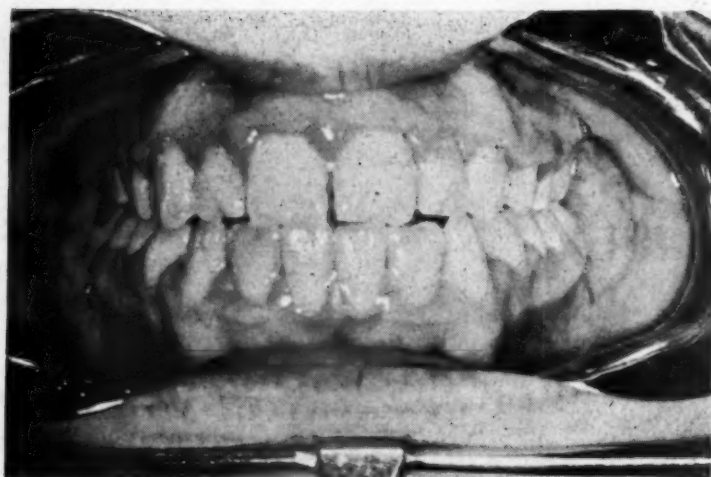
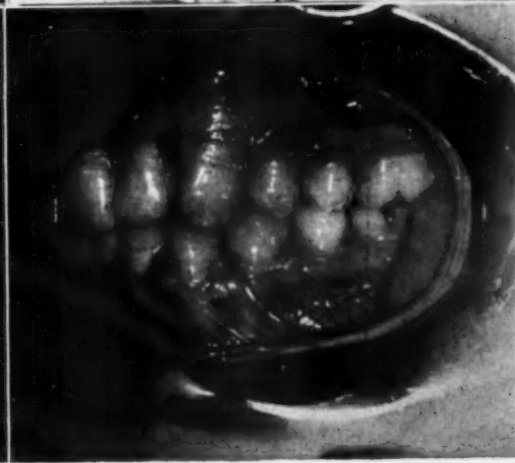
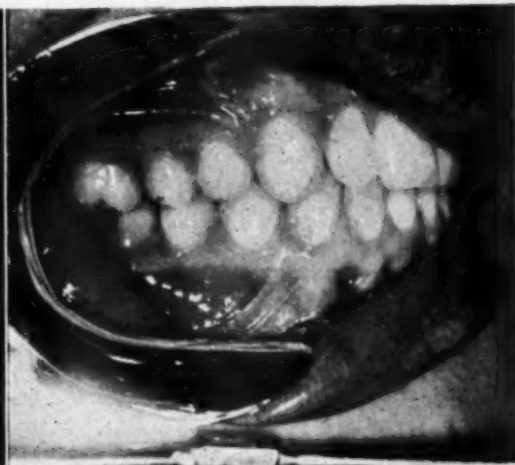
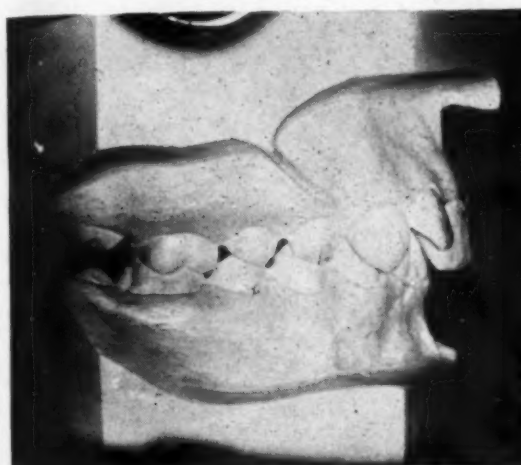


Fig. 7.

Fig. 6, Case 4, girl aged 13 years when treatment was started. Two years previous to this time I had referred her to a specialist for speech correction. I felt that unless some correction could be made in the perverted tongue action, retention after treatment would be impossible. Considerable improvement was made in positioning of the tongue during swallowing and in talking. Upper and lower twin arches were placed after banding the maxillary and mandibular six anterior teeth. Loop spurs were soldered to the caps and vertical elastics worn. After the open-bite had been corrected, a Kesling positioner was placed.

A.

B.



C.

D.

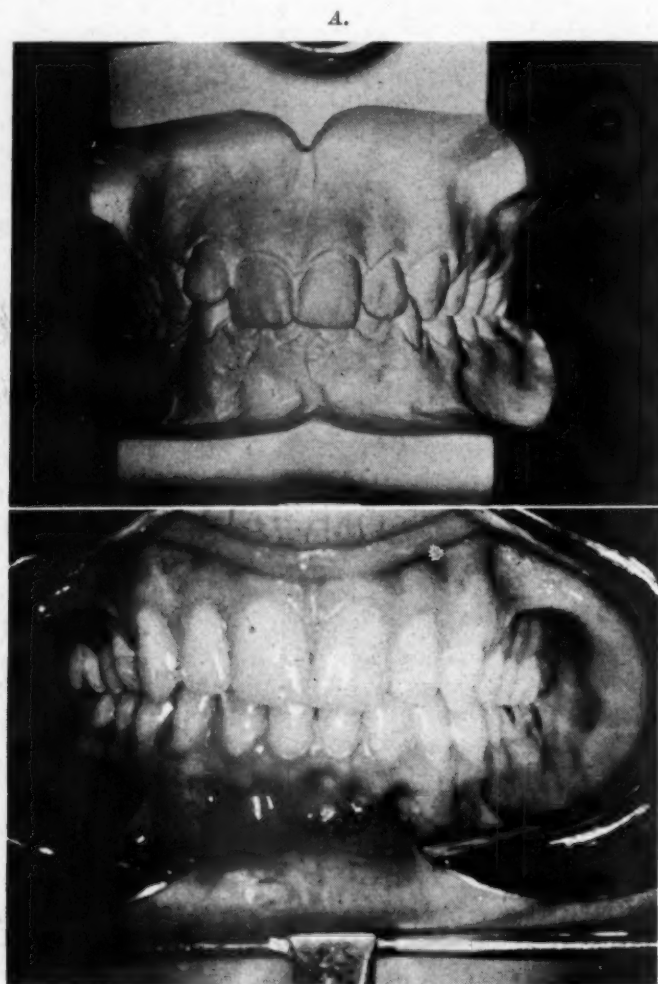
Fig. 8.

It was worn at night and about two hours during the day. Retention has been quite satisfactory. The mesiodistal relationship of the molars and premolars was nearly normal.

This shows the loop spurs, making possible the use of vertical elastics. During part of the treatment a flat wire was placed without the end tubes. The force of the elastics was then entirely on the anterior teeth because the arch did not extend into the buccal tubes.

Fig. 7 shows the condition a year after the bands had been removed. The positioner is worn two or three nights a week. There has been some relapse and I believe some retention will be required for a long time.

Fig. 8, Case 5, a bilateral distocclusion in a girl 12 years of age. A deep overbite was present and the maxillary right lateral incisor was blocked out of alignment.



B.

Fig. 9.

A lower lingual with spurs between the cuspids and first premolars was used for anchorage. The maxillary four incisors were banded. Intermaxillary elastics were worn until the incisors were moved distally in contact with the labial surface of the mandibular incisors. The bite opened during this phase of the treatment. Coil springs were placed on the end tubes to complete the distal movement of the molars. An upper lingual had been used with recurved auxiliary springs for expansion. When the coil springs were placed, the upper lingual was removed. I am showing you several cases of this type because they

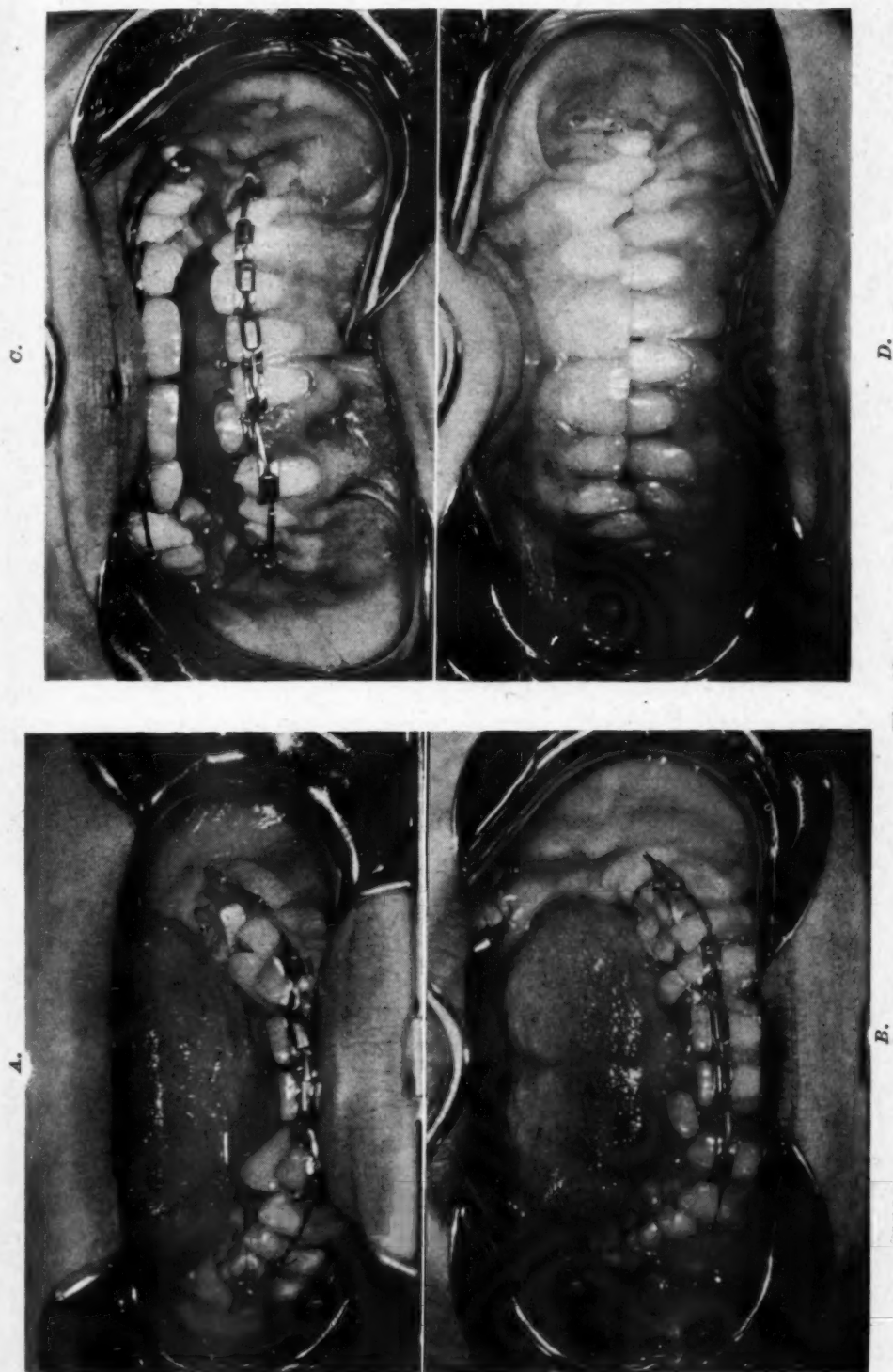
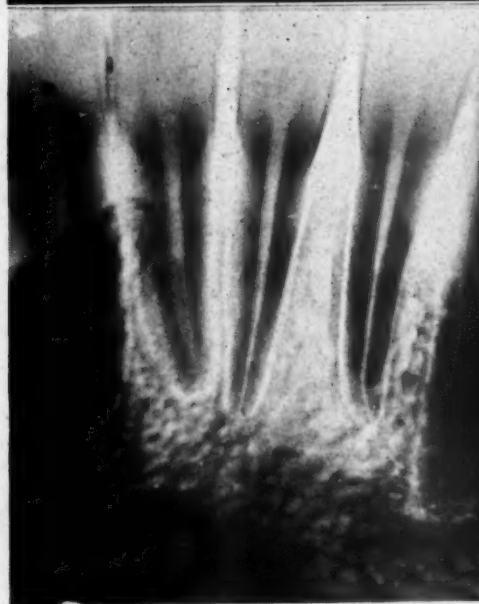


Fig. 10.

A.



B.

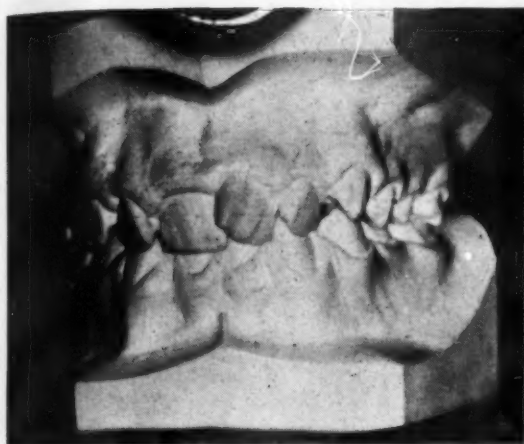


C.

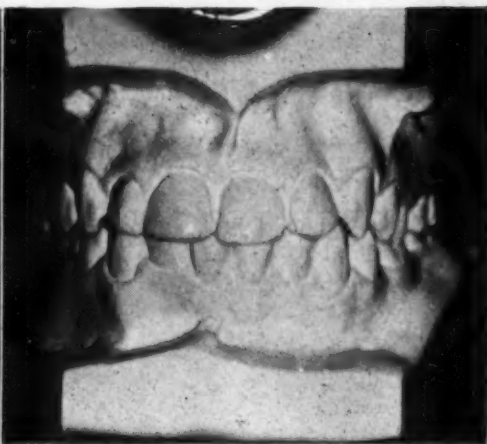


D.

Fig. 11.

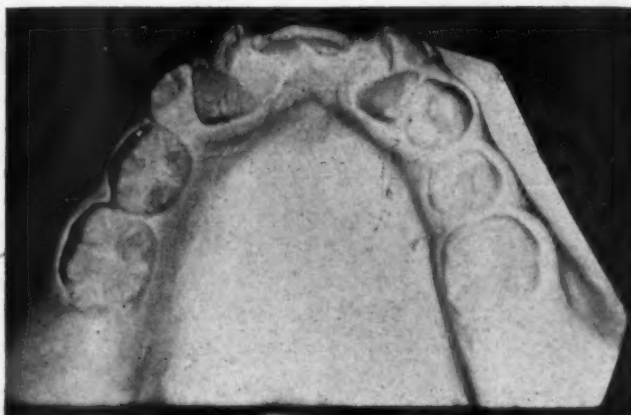


A.



B.

C.



D.

Fig. 12.

are typical of the results obtainable with this appliance and they do not show any tendency for bimaxillary protrusions. Time of active treatment was twenty months.

Fig. 9, *A* shows the front view at the beginning of treatment. Fig. 9, *B* was taken recently. A retainer is worn two nights a week.

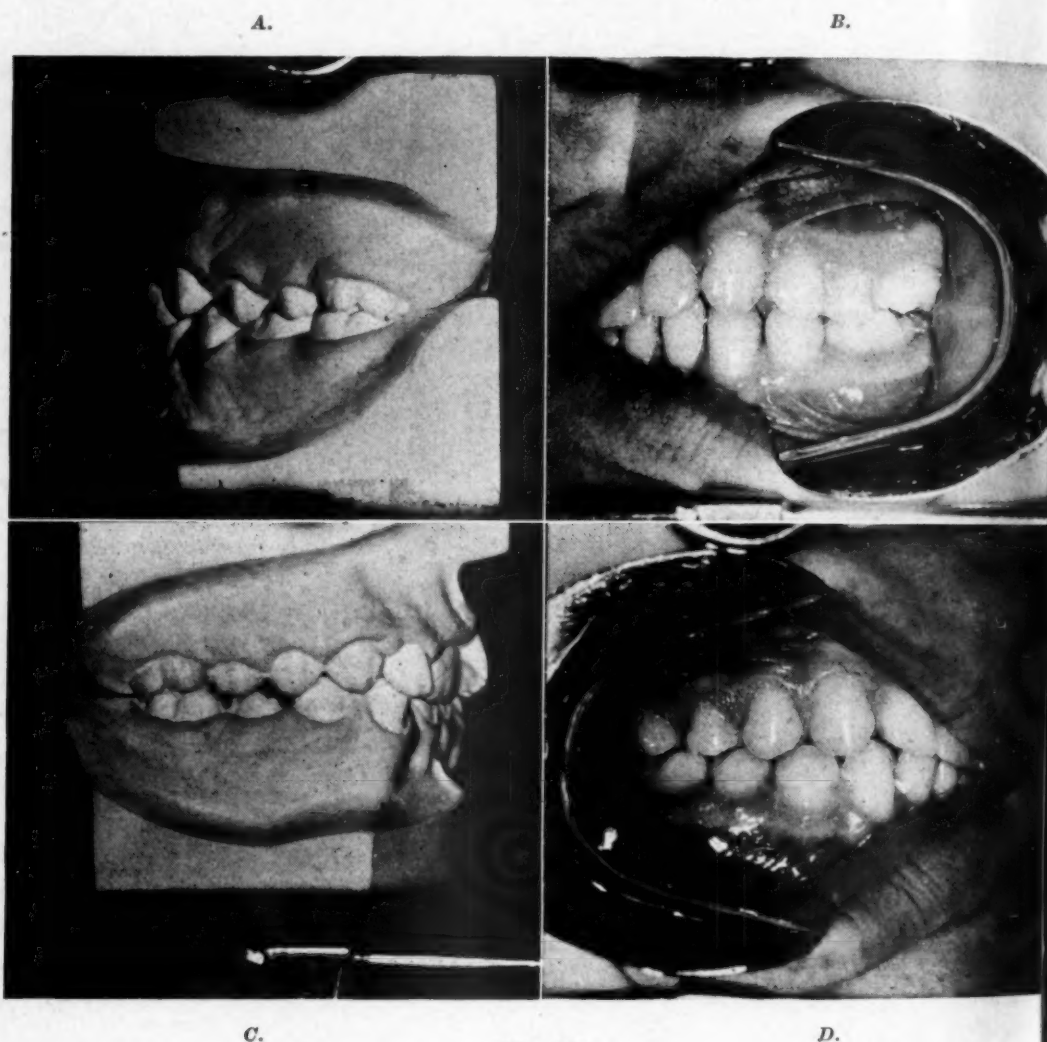


Fig. 13.

Fig. 10, Case 6, girl, aged 12 years. The molar teeth were in nearly normal relationship. The mandibular left second premolar was congenitally missing. The mandibular lateral incisors were rotated and in contact with the mandibular first premolars. Extraction of the lateral incisors, in my opinion, was contraindicated. The mandibular left second deciduous molar was extracted. This was the most extensive tooth movement of anterior teeth that I had ever attempted and in this case I learned the real value of the anterior coil springs. This series of pictures shows very nicely how the cuspids and premolars were moved distally and the laterals brought into position by careful movement.

Fig. 11, *A, B, C, and D*, roentgenograms of Case 6 which are of interest. In the first, notice the lack of density of the bone where the lateral incisors should be. The second one was taken during the progress of treatment. The last two were recently made and, I believe you will agree, show no root damage even though the teeth were extensively moved.

The models in Fig. 12 show the condition before and after treatment.

Fig. 13 shows side views of the models and recent photographs of the mouth. Notice the nice adjustment of the occlusion where the deciduous molar was removed.

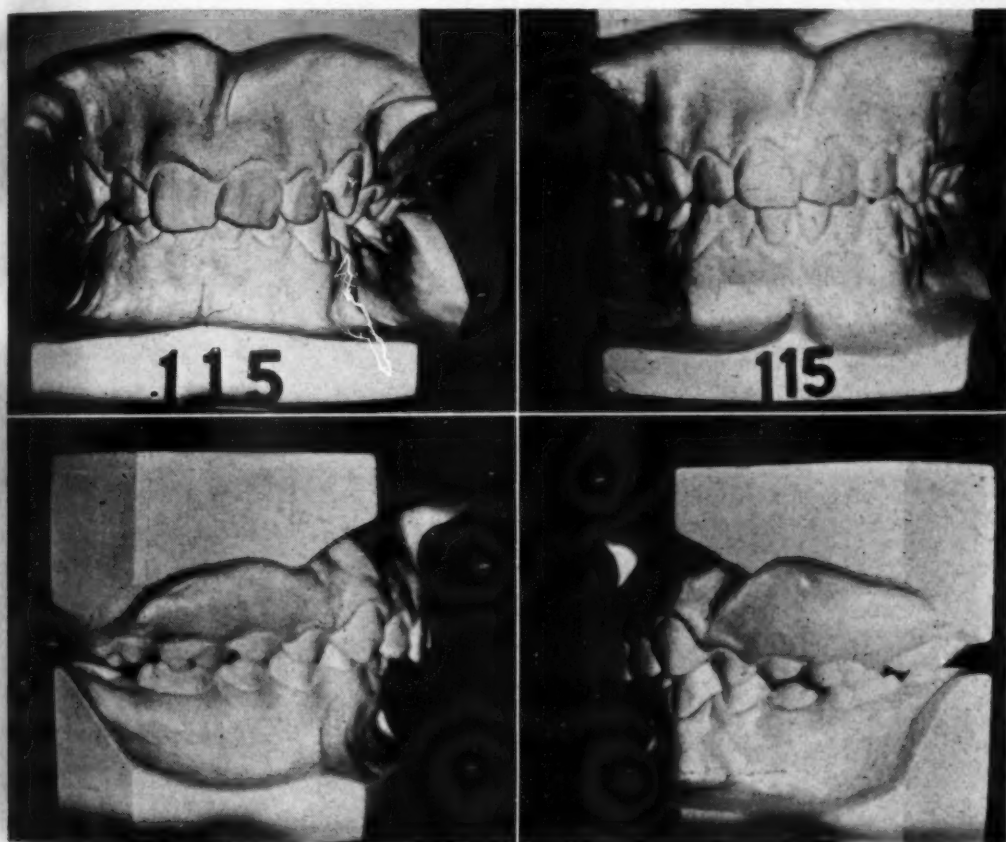
*A.**B.**C.**D.*

Fig. 14.

Fig. 14, Case 7, another bilateral distoclusion case treated the same as the ones previously described. The anterior teeth were banded and moved distally. Upper and lower linguals were used. When coil springs were placed, which was after the maxillary anteriors had been moved distally, the upper lingual was removed. Always remove the upper lingual when using coil springs for distal movement of the molars.

When treatment was started, the mandibular right deciduous cuspid was removed as the root had not resorbed and all the other deciduous teeth had been shed. The permanent cuspid did not erupt so I had a surgeon uncover the

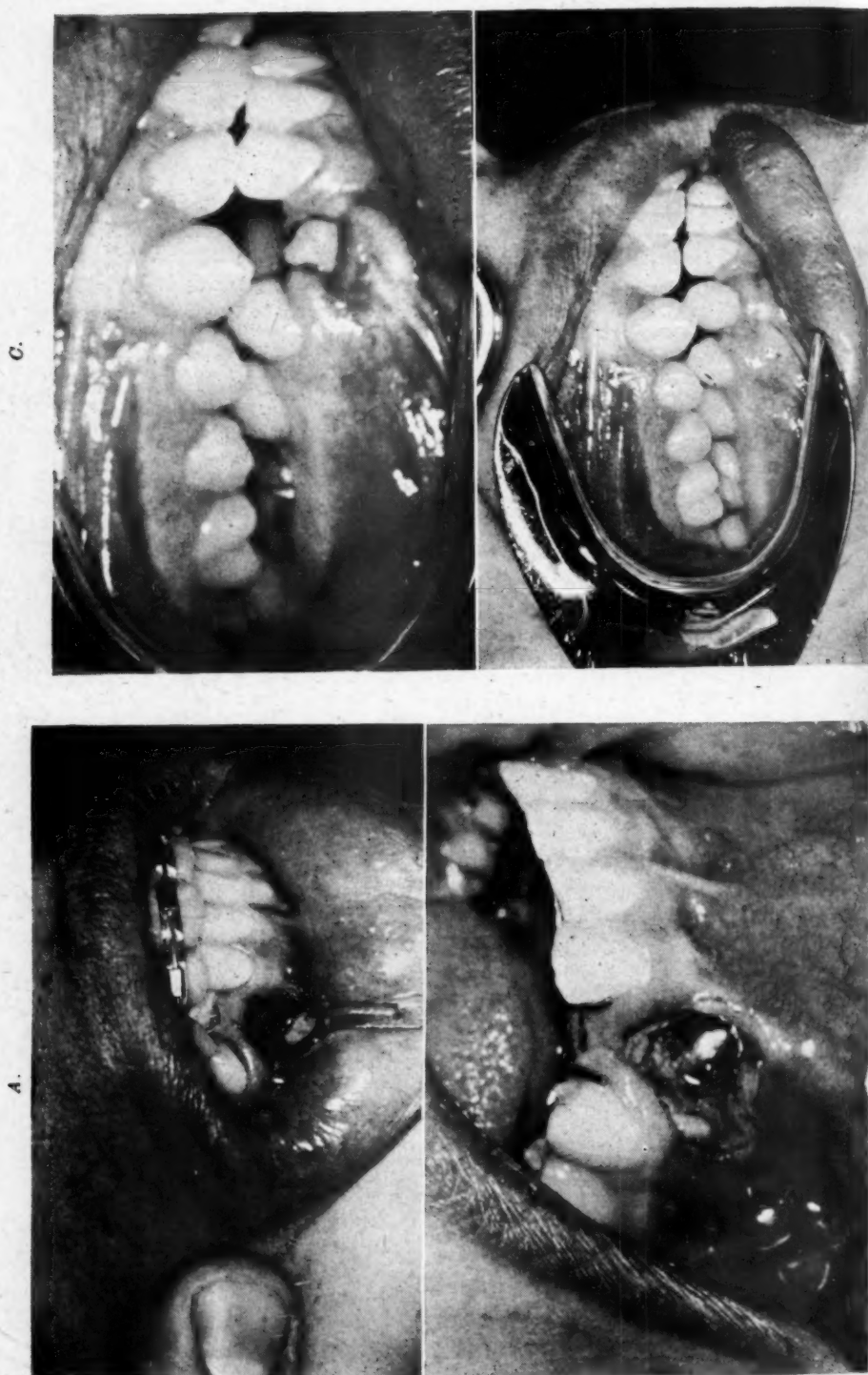
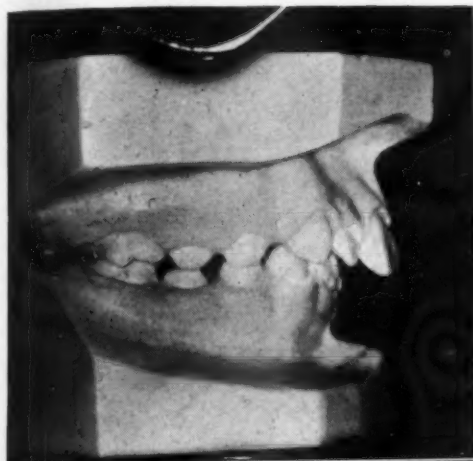
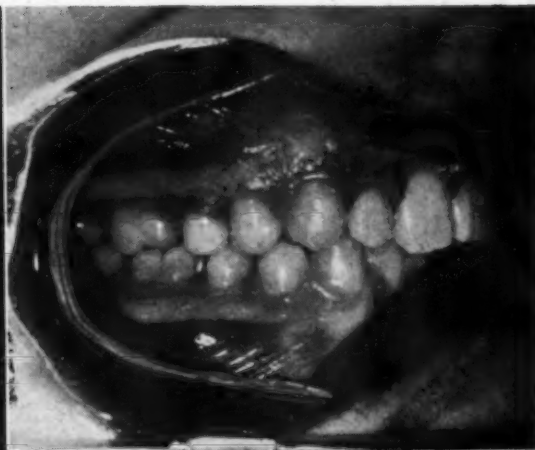


FIG. 15.

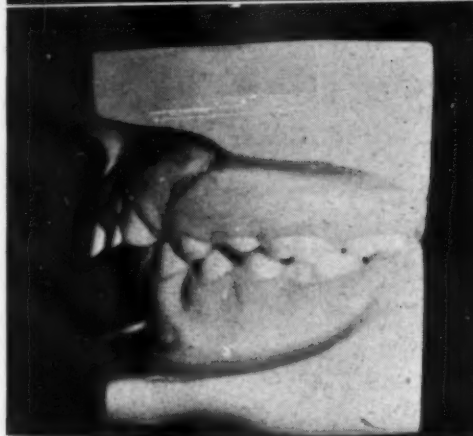
A.



B.



C.



D.



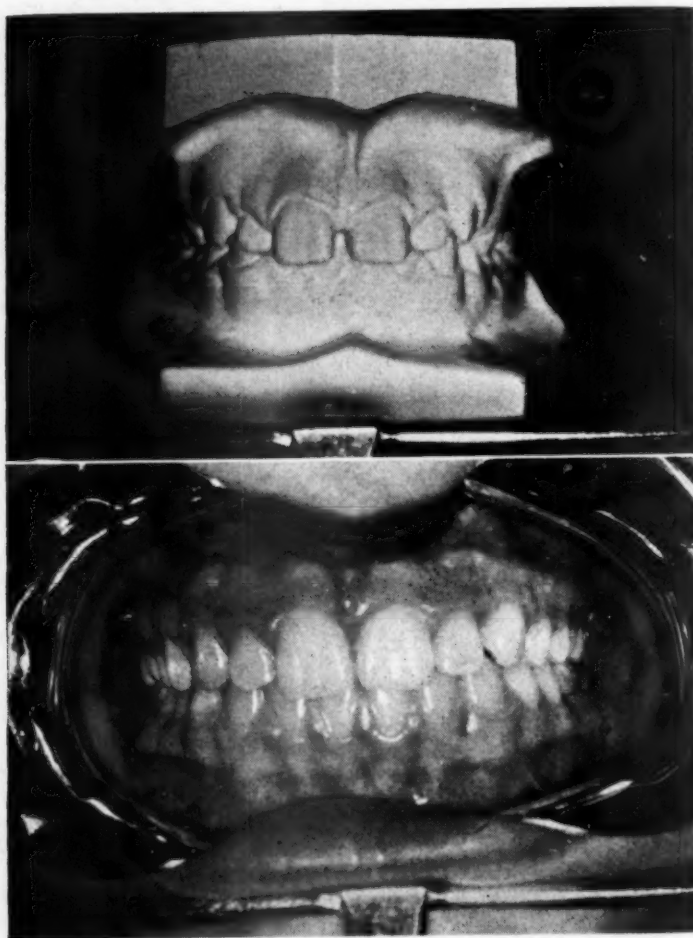
Fig. 16.

tooth. I proceeded with treatment and was about finished except for positioning the unerupted cuspid.

Fig. 15, a rather interesting sequence of photographs, shows how the cuspid was brought into position. Since this experience, I have the surgeon uncover more of the crown, and the tooth then has little difficulty in erupting without this procedure.

The case shown in Fig. 16 is not unusual but again shows a distoclusion with deep overbite and marked protrusion of the incisors. The side view shows the nice result.

A.



B.

Fig. 17.

Fig. 17 shows the improvement of the overbite and a good alignment of the anteriors.

In closing, I would like to suggest that you study carefully the procedure which Dr. Johnson advises. The mechanism is a simple one, but as with all appliances, it needs careful manipulation.

22 LAFAYETTE PLACE

DISCUSSION

Dr. Dan C. Peavy, San Antonio, Texas.—I have been an interested and appreciative listener to the paper and case reports presented by our essayist, Dr. C. K. Madden. I have been using the twin arch appliance in various forms and modifications for a number of years and regard it very highly as a valuable aid in orthodontic treatment. Dr. Madden has certainly brought us an unbiased, open-minded presentation of the philosophy, procedure of treatment, and results obtainable with this appliance, and the members of this Society and guests are certainly indebted to him for his time and efforts.

In opening this discussion, I shall arbitrarily differ with the essayist from time to time, whether they are my own beliefs or not. I purposely do this in order to present another approach to the subject and to further stimulate discussion from the floor to the ultimate end that we will all have gained by a free-for-all discussion of the essayist's presentations.

I am seeing the slides for the first time this morning and as this discussion was written from a brief synopsis of each case, there will probably be some divergent diagnostic facts as we go along. For this, I ask the tolerance and indulgence of the essayist and of you.

CASE 1.—In cross-bites, involving premolars with a deep overbite, we sometimes find buccoversion of the premolars in one arch and linguoversion of the opposing teeth. To expand only the linguoversion teeth would result in overexpansion in order to occlude with the buccoversion teeth of the opposite jaw. To offset this, opposite force should be applied to the buccoversion teeth. I do not attempt distal movement of upper posterior teeth until the second molars have erupted well past the contact point of the first molar for fear of "rolling" the first molar around the occlusal of the second molar instead of moving the second molar ahead of the first molar. In these deep-bite cases, frequently the lower incisors strike the cingulum of the upper incisors and the lower arch shows an exaggerated curve of Spee with high lower anteriors and mesially tipped first molars. To correct this, and to establish anchorage in the lower arch, I place a lingual arch fitted to ride on the cingulum of the lower cuspids. Buccal tubes are placed parallel to occlusal surface of lower first molars, which will place the anterior section of the inserted arch well below the gingival. Loop stops are placed on the end sheaths. The twin section is raised up and ligated to the lower incisors which, as a rule, are not banded. The loop stops are tied back tight. Bends are made anterior to the lingual posts to apply pressure on the cingulum of the cuspids. As the molars tip up and the anteriors are depressed, compensating bends are made in the lingual arch to keep pressure on the cuspids. As the molars tip, the pinch is taken off the lower premolars and they tend to move up into a better plane of occlusion. This procedure also opens the bite. While this is going on, the upper posteriors are being moved distally by banding the upper incisors and using a twin arch with loop stops on the end sheaths and intermaxillary elastics. As the molars move distally, the bite is further opened. The upper premolars usually follow of their own accord. When the molars are back, a lingual arch is placed for anchorage and loop springs added to finish any distal movement of the premolars. The action of the twin arch is then reversed from "pushing" the molars back to "pulling" the anteriors back, which by now have no interference from the lower anteriors.

CASE 2.—May I repeat the caution against moving upper first molars distally against partially erupted second molars. I do not know if this applies to this case as I have not seen the x-rays or models, but it is a good point to remember. I like the procedure of starting distal movement of molars early in treatment.

CASE 3.—With the idea of stimulating further discussion of appliance therapy in treating this type of case with the Johnson twin arch mechanism, I would like to offer a slightly varied technique. I would not extract the upper premolars before using my upper posteriors for intermaxillary anchorage. I do not like the cantilever type of traction on the lower cuspids. It is like the tail wagging the dog. As the section arch moves distally through the buccal tube, the path you wish the cuspid to follow is altered. The force of the elastic

pulling at an angle on the free end of the segment tends to elongate the cuspid. I favor placing the cuspids on a predetermined "track," both upper and lower, and sliding them along this stabilized track like beads on a string. Briefly, the procedure is this: The molar teeth are banded. Lingual arches are fitted tight against the lingual of the incisors, but being sure not to interfere with the path of the cuspids. Buccal tubes, 0.036, are placed. The six upper and lower anterior teeth are banded using Angle edgewise brackets. A 0.020 round arch ending in 0.036 end sheaths is fitted to the brackets and as it passes distal to the cuspids, it is shaped to the path the cuspid is to follow. The arches are tied back to the buccal tubes. Thus, you have established a scaffolding or framework of anchorage to pit against the distal movement of the cuspids. The cuspids, all four at the same time, are then moved distally by direct pull to the first molars in each arch by coils, loop traction, grass lines, or what have you. When the cuspids are in contact with the second premolars, they are tied back. The lingual arches are remade to allow for distal movement of the incisors and to incorporate the cuspids in the anchorage. Twin arches are substituted for the 0.020 arches and loop stops placed and tied back. By pinching the loop stops, the upper and lower incisors are brought back with a pulling, hugging action which automatically produces the desired arch form at the same time. The treatment time is considerably shortened by this procedure, twelve months being about the average.

CASE 4.—The important points of this case lie not in the appliance therapy used to correct it, but in the importance of breaking the tongue habit before starting treatment and insuring adequate and prolonged retention after treatment. I think the Kesling positioner is particularly adapted to retention for this type of case.

CASE 5.—As in the first two cases shown, I would reverse the procedure shown here by moving the molars posteriorly first, thereby opening the bite and at the same time creating room to retrude the upper anteriors. The upper anteriors are better anchorage before they are disturbed than after they have been moved. I question the effectiveness of a lingual arch alone on the lower arch for anchorage. By the simple addition of a twin arch set low and raised up and ligated to the lower incisors and tied back with stops to the buccal tubes, you have locked the lower arch in an effective unit embodying all the much discussed elements of anchorage, tip backs included.

CASE 6.—I think this is a very sane and practical solution to this case. It was well worth the risk of extensive movement of the laterals in order to close the space left by the missing premolar and thus avoid a mechanical restoration. The interesting thing about this case is that the x-rays show no root damage even after this extensive root movement.

CASE 7.—Treatment and discussion of this type of case have already been covered. It is interesting to note the experience with the unerupted cuspid and I hope we have all learned our lesson along this line by now.

CASE 8.—The same procedure as previously discussed.

In closing, I wish to say that after just viewing the slides of these cases, I am sure you all join me in congratulating Dr. Madden on the very beautiful results he has attained. "The proof of the pudding is in the eating" and you have just been shown what can be accomplished with this type of appliance therapy. We are indeed grateful to him for bringing this fine presentation to us. Thank you.

Following the opening of the discussion of the papers by Dr. Nathan G. Gaston and Dr. Dan C. Peavy, the following questions were asked by:

Dr. J. Stier Cunningham.—If you find it necessary to extract four premolars to retrude teeth, which premolars are extracted first, the mandibular or the maxillary?

Answer.—Most of my patients prefer a general anesthetic so I usually have the exodontist extract all four. If two at a time are removed, I would extract the mandibular premolars first. I have had better results by securing first a satisfactory alignment of the mandibular teeth and then correcting the maxillary condition.

Dr. Curtis Williams.—Do you move molars distally?

Answer.—My answer is based on clinical experience only; I believe I move maxillary molars distally but I am not sure about moving the mandibular molars distally.

Dr. Robert Gaston.—How do you move mandibular molars distally?

Answer.—I attempt to move mandibular molars distally by means of coil springs placed on the end tubes of the mandibular twin arch. No lower lingual arch. The anchorage on the maxillary arch is an upper lingual and a twin arch locked in the four anterior bands. The upper buccal tubes are pinched on the end tubing of the twin arch to help secure the anchorage. Intermaxillary elastics are worn from the upper molar buccal tubes to hooks on the lower twin arch.

Dr. E. B. Arnold.—In a Class I, division 2 case, where you are just retruding the four anterior teeth, should a lingual arch be used for stabilization?

Answer.—Yes, Dr. Arnold, I would use a lingual arch.

Dr. Homer Robison.—Have you ever used just one-half of a Johnson tube cap, that is, one-half of the works mesial to distal, to cut down bulk?

Answer.—No, I haven't, Dr. Robison, and thank you for the suggestion.

Dr. T. O. Gorman.—I want to make an observation—I think there is very little bodily distal movement of molars; I think they are tipped distally and then bodily movement occurs through the force of mastication.

Answer.—Thank you, Dr. Gorman.

Dr. Madden (closing).—I want to thank all of you for your attention and constructive criticisms and, particularly, Dr. Nathan Gaston and Dr. Dan Peavy for leading the discussion. Their criticisms and innovations will be helpful to all of us.

THE PREVENTION OF DENTAL CARIES

HAROLD B. YOUNGER, D.D.S., DALLAS, TEXAS

INTRODUCTION

IN ATTEMPTING the control of any disease, it is necessary to have a correct conception of the disease before successful therapeutic and prophylactic measures can be undertaken. Since efforts at caries control were so long based upon misconceptions of the caries process, it is not surprising that such efforts met with little or no success. Theories of etiology and attempts at control based upon such misconceptions became so complicated that the problem seemed almost hopeless. The dental profession has attempted to compensate for a lack of adequate control measures through the excellence of its operative and restorative procedures. In doing so, it has developed a degree of functional and esthetic perfection in such procedures not equaled in any other part of the body, but has at the same time met with disappointment in many instances through further caries progress.

HISTORY

Almost every branch of science has at one time or another attempted to solve the caries problem. Dentistry alone must bear the blame for their failures, for dentistry had failed to produce a true explanation of the modus operandi of the disease, and was therefore unable to solve its problem for the same reason. Because dentistry had failed, other branches of science felt pity for its ignorance, and much like well-to-do kinsfolk prescribing for an improvident and impoverished relative, offered generously of their advice for the solution of its problem, without having to accept responsibility when the advice proved worthless. And each time, dentistry, grasping at the straw, went overboard with new ideas, explanations, and prescriptions, until each in its turn proved fruitless when caries failed to be or was only slightly retarded.

It is particularly noteworthy that almost every trend in medicine has been seized upon by dentistry to explain and attempt to control caries. Some of the resulting treatments might be laughable if they had not been so expensive, both in money and at times in health. To refresh our memory, it might be well to mention briefly some of these trends and some of the caries control methods which derived from them.

The work of Pasteur in bacteriology produced a tremendous change in medicine. Robert Koch furthered this trend by his discoveries, and Miller¹

From the Department of Dental Research, Baylor University College of Dentistry, and the Dental Department, Richmond Freeman Memorial Clinic, Children's Medical Center, Dallas, Texas.

applied their knowledge to a study of oral microorganisms and particularly those in carious dentin. From his findings has developed the concept that caries results from dissolution of the inorganic matter of the teeth by bacterial acids formed outside the tooth. Following this concept has resulted in naming the *Lactobacillus acidophilus* the causative agent. Attempts to prevent caries by eliminating this microorganism from the mouth have been centered around the removal of carbohydrates, and especially sugars, from the diet, thus starving out the microbes and, incidentally, sometimes almost starving the patient. The danger of such practice, particularly in the case of children, must not be underestimated. Carbohydrates are an absolute essential of proper nourishment, and to eliminate them or reduce their intake below optimum levels may well result in serious nutritional disturbances.

Another trend which should be mentioned is that of nutrition, which is comparatively new, having been developed to its present high standard within the past twenty-five years. In this connection, caries has been explained as due to avitaminosis D, C, B, and K, lack of calcium, lack of phosphorus, and lack of various other dietary factors, respectively and collectively. Naturally, caries control was considered dependent upon optimum or even massive doses of these factors, respectively and collectively. Most dentists practicing within the past fifteen years have had some experience along this line, and the most significant results obtained were found in the sales reports of the various drug houses, with particular emphasis on those of the shotgun capsule containing all the vitamins and minerals considered necessary to produce perfect teeth.

Still another trend resulted from the introduction of endocrinology. Although some investigators have professed to find a connection between various glandular dysfunctions and caries incidence, attempts along these lines have never gained widespread acceptance or usage. Perhaps the dangers attendant upon the administration of glandular extracts and the fact that medicine itself still has so much to learn about endocrinology have been responsible for reluctance to attempt caries control through this medium.

Strangely enough, fluorine, the factor which has produced the most widely observed effect on caries incidence, was misunderstood and its action misinterpreted. Most investigators have attempted to explain the caries-inhibiting effect of fluorine as due to its somehow causing enamel to be less soluble in acid. How this is accomplished has not been satisfactorily explained. The real explanation of the caries-inhibiting effect of fluorine is much less mysterious and will be mentioned later in this article.

It remained for Gottlieb^{2, 3} to present a concept of caries which is logical and embraces principles long recognized as fundamental in other tissues of the body. Gottlieb brought to the study of caries the knowledge gained from many years of practical clinical experience with the caries lesion, as well as an equally long microscopic observation of the tissue involved. His clinical observations coupled with his profound histopathologic knowledge have enabled him to interpret his findings and those of others in such a manner as to demonstrate clearly the etiology, pathology, and prophylaxis of the caries process.

CARIES PREVENTION

With the present knowledge of caries, it becomes evident that prevention and control of the disease are dependent primarily upon the degree of immunity or susceptibility of tooth tissue to bacterial invasion.

It is necessary to differentiate between immunity as it is spoken of in connection with the resistance of the body to infection and as we consider it in connection with the resistance of tooth tissue to bacterial invasion. Systemic immunity is dependent upon various physiologic, metabolic, and environmental factors and upon the presence of antibodies in the tissues of the body. Immunity of the tooth surface to bacterial invasion is dependent upon the availability or nonavailability of suitable organic matter for invasion.

Caries immunity has been classified⁴ as *developmental* or pre-eruptive and *acquired* or posteruptive. Developmental immunity of the enamel surface occurs when developmental factors during formation of the teeth are such that the enamel surface is homogeneously calcified to a degree that bacteria have insufficient organic matter available for invasion. The influence of prenatal and pre-eruptive nutritional and metabolic factors determines the degree of this type of immunity which is present when the tooth erupts. It seems likely that the greatest benefits in caries control from adequate nutrition occur in this manner. The extreme in this type of immunity is exemplified by the transparent enamel found in the peripheral parts of teeth formed in fluorine areas. This homogeneous hypercalcification of the enamel is one of the phenomena of fluorine which accounts for the lower incidence of caries reported from such areas. However, lamellae seem not to be affected by such pre-eruptive hypercalcification.

Acquired immunity has been further classified⁴ as *natural* and *artificial*. *Natural acquired* immunity may be produced by deposition into the tooth surface of calcium salts present in the saliva, thereby blocking by calcification the organic entrances of the lamellae and prism sheaths and the organic content of exposed dentin or cementum, rendering them uninvadable. Reports found in the literature^{5,6} show no significant statistical differences in the calcium or phosphorus content between the salivas of caries-immune and caries-susceptible persons. There must then be present in caries-immune persons and not present in caries-susceptible ones an unknown factor which governs this deposition. It is hoped that future investigation may determine what this factor is. The existence of such a method of protection for the tooth surface would coincide with Nature's provisions for repairing breaks which occur in other parts of the body's covering. It is inconceivable that provision should not be made for the repair of broken and worn tooth surfaces and surfaces exposed through continuous eruption, and since the tooth surface is incapable of regeneration, the repair must come from the fluid which constitutes its natural environment, the saliva. Gottlieb, in his writings, has offered much evidence for this viewpoint. The ability of the saliva to protect tooth surfaces he terms the "quality" of the saliva.

Artificial acquired immunity may be produced by impregnating the tooth surface with drugs which produce an insoluble deposit. This deposit should be of such nature as to seal and block completely the organic entrances or render them impermeable to bacterial invasion. Another phenomenon of fluorine which may account for lowered caries incidence in fluorine areas comes under the heading of *artificial acquired immunity*. In drinking water containing sodium fluoride, the organic entrances of the lamellae and prism sheaths may become fluorinized. The attraction between fluorine and calcium is extremely strong, being greater than that between iron and oxygen. The fluorinized organic matter then attracts calcium from the saliva and surrounding tooth structure. The calcium and fluorine combine to form insoluble calcium fluoride which obstructs the invasion roads, resulting in increased resistance to caries. The reported lowering of caries incidence following topical application of sodium fluoride solutions to the teeth can be explained in the same manner. However, it is not felt that the 2 per cent sodium fluoride solutions used for topical application in caries prophylaxis can have a highly caries-inhibiting effect. Gottlieb has stated that caries susceptibility and sensitivity of exposed dentin are based on the same principle, that is, exposed noncalcified organic matter. Lukomsky⁷ found that 33 per cent sodium fluoride is necessary to desensitize dentin and I have observed that 2 per cent sodium fluoride has little if any effect on the sensitivity of dentin.

Gottlieb and Hinds,⁸ in 1942, reported that *Lactobacillus acidophilus* counts could be reduced, often to zero, by impregnating the surfaces of the clinical crowns of the teeth with silver nitrate compounds. In experimenting with such compounds for prophylaxis against caries, I have observed a 90 per cent reduction of caries incidence in treated teeth as compared with untreated ones. The statistics of this study will not be given here, but have been previously reported,⁹ and findings are being tabulated at the present time for a report covering a four-year period. At the same time, further experiments with different drugs will be undertaken. It is a source of satisfaction to be able to report that similar experiments are being carried out by other investigators, both in and out of the United States. Reports on their findings will broaden the scope of the study of this method of caries prevention.

In the January, 1947, issue of the *Texas Dental Journal*, Gottlieb¹⁰ has outlined a technique for caries prophylaxis by impregnation which employs drugs which the dentist may obtain at any prescription laboratory, or may compound himself. The technique which he describes is as follows:

"If hopelessly decayed teeth are beyond saving, they should be extracted before impregnation. Do not fill cavities before impregnation, but rather impregnate them as well as all other tooth surfaces and then fill them, impregnating again the prepared cavities.

"On the day of impregnation, carbohydrates (including chewing gum) should not be allowed in the mouth before impregnation in order that the enamel lamellae may not be filled with sugar.

"All solutions used for impregnation should be kept in dark bottles. Never dip the cotton pellet in the bottle.

"After a thorough prophylaxis the teeth are washed with spray. Four teeth are isolated with cotton rolls, if an assistant is available to take care that saliva does not interfere. Otherwise a rubber dam is indispensable. The teeth are dried with air, washed with benzine and dried again. Then they are moistened with 1 per cent Naccanol* solution, passing dental floss between the contacts in order to insure that no air bubbles are formed and the fluid comes in contact with the tooth surface everywhere. The surplus is picked up at the gingival margins. The teeth remain moist. Now a 10 per cent silver nitrate solution is applied the same way, again passing dental floss between the teeth. The surplus is again picked up at the gingival margins. The silver nitrate is allowed to stay not more than one minute. If it is left longer before precipitation, it may turn dark. Now saturated calcium chloride solution is applied in the same manner, again using dental floss. It instantly causes a white precipitation of insoluble silver chloride. If as much as one spot is left unimpregnated, the result is a failure.

"Between the ages of 6 and 12, new teeth and new belts of teeth are constantly erupting. Such teeth should be impregnated three times a year. It is of special importance to impregnate the occlusal surfaces of the first molars right after eruption, for the protection of the fissures of this tooth. Later one impregnation a year is sufficient.

"In the case of the erupted parts of the anatomical root surfaces (cementum), four impregnations a year are necessary because these surfaces are hard to penetrate. In impregnating teeth with silicate or amalgam fillings, the fillings should be protected with sticky wax, or petrolatum."

In the same article, mention is made of numerous indications for the use of such impregnation in dentistry. Part VI of these recommendations should be of particular interest to orthodontists. It states, "Before starting orthodontic treatment, all teeth should be impregnated in order that their resistance be increased against the invasion of micro-organisms (which is) favored by the protection of the orthodontic appliances." The possibility of materially lessening caries incidence during the period of orthodontic treatment will no doubt greatly appeal to the orthodontist since it has not been uncommon for many years to blame orthodontic treatment for an increase in caries incidence.

At this point, mention should be made of the effect of sugars on caries activity. Gottlieb³ states, "It is an old and proved fact that ingestion of carbohydrates, especially sugar, promotes dental caries in susceptible people. It is also probably undisputed that caries immune people can eat unlimited quantities of sugar without alteration of their caries immunity.

"The following explanation is suggested. Caries immunity means that the organic roads are obstructed and no microorganisms can invade. Neither can sugar penetrate the organic roads in these cases. In caries susceptibility the roads are invadable. Sugar sweetens these roads and improves the living conditions for the microorganisms. The suggested impregnation by some factors of the saliva cannot take place as long as the roads are occupied by sugar."

*Naccanol is a commercial detergent, or wetting agent, which is manufactured by The National Aniline Division, 40 Rector Street, New York 6, N. Y.

Thus sugar may be said to exert a twofold influence on caries activity. Its presence in the organic matter of the tooth surface interferes with the deposition of calcium salts into the tooth surface and the possibility of natural acquired caries immunity. At the same time, the presence of sugar in the organic matter encourages activity of invading bacteria.

With the foregoing knowledge at hand, the program for caries prevention begins to take definite form. It is not at this time a one-stop, one-shot proposition, but a continuing effort throughout the lifetime of the individual. Responsibility for adequate nutritional and normal metabolic influences, both pre-natal and afterward, rests with the physician, but the dentist must be able to recognize marked symptoms of abnormalities in these factors which may appear or be indicated in his examination.

The dentist should make careful and regular mouth examinations at frequent intervals, and at the first evidence or suspicion of caries susceptibility should commence impregnation. Sensitivity should always be regarded as evidence of susceptibility. Impregnation should be repeated at four- to twelve-month intervals, according to the needs of individual patients. All areas of exposed dentin or cementum should be immediately impregnated, as should all tooth surfaces covered by appliances of any description, and impregnation repeated at four-month intervals.

If such a program is rigidly followed, a greatly lowered caries incidence will be assured.

CONCLUSION

Understanding of the caries process and principles of immunity have made the control of caries a possibility. Developmental immunity is seldom sufficient to prevent the disease without the assistance of acquired immunity. Natural acquired immunity results from some factor, as yet unknown, in the saliva. Until this factor is discovered, we must resort to artificial impregnation in caries-susceptible mouths.

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DISCUSSION

Dr. E. T. Gillean, Dallas, Texas.—Dr. Younger has presented an excellent history of the dental caries problem, stating the different evolutions and cycles that we have gone through in caries prevention.

The Southwestern Society of Orthodontists and the program chairman should be congratulated on sponsoring such a fine program and giving one full afternoon to the dental caries problem.

We are indeed fortunate in hearing and having contact with Dr. B. Gottlieb, a histopathologist who is able to interpret his findings as well as those of others in a manner to demonstrate clearly the etiology, pathology, and prophylaxis of the caries process.

The dental caries story cannot be presented in a few brief moments. I recommend to you Dr. Gottlieb's book, *Dental Caries*, published by Lea & Febiger. Dr. Gottlieb has given us a new theory and explanation of the dental caries problem which has taken a great deal of time and effort to develop and present. His immunization in light of this theory is quite logical and he does not claim that it is the final solution of this problem. It is up to those capable of research to experiment with different drugs and combinations which will seal these organic entrances and render them impermeable to bacterial invasion.

I wish to stress several points brought out in Dr. Younger's paper.

- (1) Sensitivity in cementum and enamel is not possible.
- (2) Denuded dentin is the only source of sensitivity.

Our chief clinical diagnosis is:

(1) By sealing the invasion roads by coagulation of proteins and forming insoluble compounds in prism sheaths, lamellae, and denuded dentin.

(a) Removing sensitivity from denuded dentin.

(b) Using *Lactobacillus acidophilus* count as an indicator. The count is brought to negative and remains negative for some time.

The discussion so far this afternoon as to prevention of dental caries has been the use of a 5 per cent silver nitrate solution precipitated by a saturated solution of calcium chloride.

All the soluble salts of heavy metals will precipitate proteins in general and give a white precipitant. Some of these metals cannot be used in the mouth, for example, mercury precipitated by egg albumen. Some of these white precipitants may change in color over a period of time; for example, gold and platinum proteinates darken on exposure to sun rays—also silver proteinate will darken on exposure to sun rays—tannic acid will precipitate proteins—zinc chloride will precipitate proteins—solution of potassium ferrocyanide will precipitate proteins. Each of these solutions (zinc chloride and potassium ferrocyanide) will precipitate the other, forming zinc ferrocyanide, which is the most insoluble salt of zinc. This precipitant will not darken on exposure to sunlight.

The importance of this type of presentation is to open the realm of individual research, and it may bring to use salts of other metals which may become more desirable from a point of discoloration or other desired features.

We do not know at the present time how long this insoluble seal endures. Any advance in establishing a permanent seal, which is desired, whether it is from drugs or phosphatase in the saliva.

Until we have further improvements, I heartily recommend the use of these drugs for their efficiency in the arresting of the invasion of microorganisms during orthodontic treatment. I must take issue with Dr. Humphreys from Denver. Impregnation of teeth should be done by the orthodontist as well as the general practitioner, and let us all work together for the common good of our patients.

Editorial

Qualifications of Specialists and the American Dental Association Plan

FOR many years the idea has been crystallizing in the minds of the dental profession that any dentist announcing that he is a specialist should verify such claim by submitting to an examination by some constituted authority.

Such authority in the past, insofar as orthodontics is concerned, has been vested in two ways:

State specialty laws ostensibly are for the purpose of protecting the public against the services of persons who claim to have superior knowledge in that particular specialized field.

Certification boards in both dentistry and medicine have no legal authority whatsoever, but they do issue a certification when applicants meet certain standards such as proved ability, ethical conduct, and professional skill after five years of practice.

As a result of an action by the house of delegates of the American Dental Association in Miami, Florida, in 1946, attention is now being sharply focused to the over-all situation in regard to the qualification of specialists in dentistry. Orthodontists, particularly, are interested in the report made by the special committee on specialization of the Committee on Dental Education of the American Dental Association (see April 15 issue of the *Journal of the American Dental Association*) because theirs is the pioneer of dental specialties and because that group have given the subject much thought and time over a period of many years.

Six states—Michigan, Oklahoma, Tennessee, Kansas, Illinois, and North Carolina—have inaugurated the so-called dental specialty statutes in their dental law, and Texas, it seems, is the next on the way to do likewise.

These six states provide for specialist licensure, and, incidentally, some of them insist on higher preparatory and legal requirements for the practice of orthodontics as a specialty than the official American Association of Orthodontics requires for eligibility for membership.

Incidentally, this paradoxical situation was discussed at the Colorado Springs meeting of the American Association of Orthodontists in September, 1946, when an amendment was submitted by the Committee on Constitution and Bylaws. It was proposed in this amendment that certain changes be made in order to provide that component societies create eligibility requirements for membership at least as strict as those of the American Association of Orthodontists. This amendment was passed, and is now officially accepted as the policy of the American Association of Orthodontists.

It has been pointed out in this connection that there are some orthodontists now members of the American Association of Orthodontists, who are also

certified by the American Board of Orthodontics, who are ineligible to pass legal or state requirements to qualify as specialists or experts in their own states. This situation is interesting at this time because it reveals the possibilities of a more conflicting situation that may later appear as a result of too many boards, too many different requirements, and too many different kinds of yardsticks with which to measure professional talent.

To further confuse the situation, the report of the special committee of the Council on Dental Education of the American Dental Association now proposes two years of formal institutional training, and, in addition, three years of further study and experience as essential requirements for certification by its now proposed national American Dental Association Board of Examiners, created to represent each of the various specialty groups of dentistry.

The committee report reflects painstaking thought and effort; however, our appraisal of the over-all report immediately suggests the question, "How will it work?"

This committee plainly does not approve of the state licensure method of certification adopted by the six states previously mentioned. It proclaims that the plan which the committee of the American Dental Association recommends by-passes need for legislative process by the various states pertaining to the qualification of specialists. On the other hand, many dentists in the states that have adopted the state licensure system plainly are not pleased with the recommendations of the American Dental Association committee. The latter maintain that legal licensure of specialists has proved generally satisfactory to the states that have adopted the plan and that such process comes within states' rights.

With these divergent views in mind, and because the house of delegates of the American Dental Association expects to vote on its committee report in Boston in August, 1947, the editor of the *AMERICAN JOURNAL OF ORTHODONTICS AND ORAL SURGERY* recently sought information on the subject from persons who should be in a position to know something about the background of certification of specialists in orthodontics.

From Dr. Oliver Wilson White of Detroit, President of the American Board of Orthodontics, comes interesting information as a result of a recent questionnaire pertaining to the specialist's law as working out in the state of Michigan.

Dr. William E. Flesher of Oklahoma City, Oklahoma, in cooperation with Dr. T. W. Sorrels (former chairman of the Public Relations Committee of the American Association of Orthodontists) recently conducted a survey of the various states that have instituted licensure legislation and they assembled a great deal of factual information.

Interesting data assembled by these questionnaires appear immediately following this editorial. Without making any attempt to break down the surveys, evidence seems to be conclusive that in the states now having specialists' laws, the dental profession as a whole is well satisfied with the operation of such laws and they believe that the laws have contributed an important step

in advance for the public and for the profession in the states that have adopted them.

They reveal that there are more teeth in the enforcement of state statutes than there are in any accrediting plan yet devised by the dental profession. The laws seem to work amazingly satisfactorily to the public and to the dental profession.

It seems that the plan has worked so well that the same action is in the offing in a number of other states. Action in several of these states has been postponed on account of the war dislocation.

Many ex-servicemen have found it difficult since the war to secure highly specialized and thorough training. The proprietary schools of the past have folded up and the university schools have taken over, but they have been unable to supply the extra demand placed on them as a result of the discharge of so many servicemen right after the war.

Largely due to the religious and painstaking efforts of the late Dr. A. H. Ketcham, of Denver, Colorado, the American Association of Orthodontists pioneered the specialist certification idea in dentistry, and it is obviously the opinion of many of wide experience that any certification plan set up to certify in the field of orthodontics should confine itself to certification on the basis of competency without thought of influencing or dictating the methods by which professional and expert competency is obtained.

Certification obviously should be on the basis of the character of the individual—the evidence presented as to the quality of work he has done as well as basic foundation and quality of education in the specialty.

In the event the plan approved by the American Dental Association which calls for two and three years' additional study and experience as a requirement for certification of an orthodontic specialist goes into effect, the question quickly arises as to where such training is to be available in sufficient quantity to fill the present demand. It is plain, however, that such a plan would consume so much time and expense that the present demand for orthodontic training would reverse itself and the urge would be limited after a few years.

To use the current popular phrase quoted in the news of the building trades, orthodontic education leading to certification will, under such circumstances, soon "price itself out of the market," and some other way, no doubt, will be found to supply the need. That is not good because specialists can still specialize even though they do not qualify under specialty boards. "Where there is a will, there is a way" will be quickly demonstrated to apply.

In so far as the specialty of orthodontics is concerned, the plan of the council has no more enforcement regulations to support it than has the present American Board of Orthodontics. The council plan is idealistic and would no doubt be acceptable to the profession save for only one important item, and that is that few will qualify for its strict requirements in orthodontics.

Sooner or later, statutory regulations by individual states, it appears, will expand to many states, and the requirements for certification by the American Board of Orthodontics will no doubt gradually become more stringent. The above two different kinds of boards (statute and certification) cannot be

combined, inasmuch as their functions are entirely different. A certification board of any specialty must be made up of members chosen from that particular specialty. Certification boards up to now have made tremendous sacrifices of time and energy, purely as a matter of loyalty to the specialty, and it has required years to put them in satisfactory operation.

A mixed specialty board would not enjoy such an urge and would not obtain the support and confidence of the different specialty groups that are so essential for a certification board to work harmoniously.

It is hoped the American Dental Association will recognize the pioneering and excellent work done in this field by the American Association of Orthodontists and the American Board of Orthodontists when that Board makes application to the council. These organizations will no doubt continue to function as heretofore. It is to be hoped that the American Dental Association will place its stamp of approval on the American Board of Orthodontics as two states that have specialists' laws have done heretofore, as nineteen years of sincere effort on the part of that Board cannot be overlooked at this time.

Oral surgery is the one specialty which may have sufficient enforcement teeth to put into effect the plan of the council, which is due to the requirements that specialists in that field enjoy recognition in member hospitals of the American Hospital Association and the Veterans' Administration.

The medical profession as a whole has taken an active interest in its specialists and has ways and means to police the standing and educational requirements. It is no doubt that the council of the American Dental Association designed its pattern with this thought in mind; however, there is an enforcement "whip" in medicine in the hospitals that unfortunately dentistry does not enjoy.

Many states will soon have their own legal boards under state statute and the question then will no doubt resolve itself into the dire necessity of the candidate's meeting the requirements of the state that he desires to practice in.

If this situation is not handled carefully and at the same time on a highly practical and realistic basis, you may be able to choose your accrediting board as you choose a new automobile, and look for the best deal.

It is indeed well that the American Dental Association has a committee that has the authority to give approval to the formation of any certifying board in any specialty of dentistry; however, the same rules that apply for certification in oral surgery will not apply in orthodontics and that situation must be realized by that board. If an attempt is made to make requirements too rigid, the result will be nothing short of the emasculation of all boards by wholesale indifference of the profession.

It is understood that the American Board of Orthodontics will soon make application for recognition by the Council on Dental Education through its Committee on Dental Specialization, and it is to be hoped those who pass on this application will have a sufficiently comprehensive understanding of the

orthodontic educational picture that it will not cause gross dislocation in the picture as it now exists.

H. C. P.

MICHIGAN QUESTIONNAIRE—WHITE

This questionnaire went to various key men such as state society officers, specialists, etc., where it was presumed firsthand information in regard to the working of the law could be obtained.

1. How does the dental profession react to our new specialty law?

One hundred per cent in favor of it.

2. Has the law actually served its purpose, keeping untrained personnel from holding themselves out as specialists and experts in the various departments of practice?

Fifty-seven per cent answered "yes."

Forty-three per cent answered "not entirely" (obviously think it is a step forward).

3. Do you believe that our profession is becoming overspecialized?

Fifty-seven per cent answered "no."

Fourteen per cent answered "perhaps in newer specialized fields."

Twenty-nine per cent answered "if so, will be checked."

4. What specialties of dentistry are recognized by the Michigan State Dental Board at this time?

Orthodontics, oral surgery, periodontics, prosthodontics, and children's dentistry.

OKLAHOMA SURVEY—FLESHER—SORRELS

Of men who answered the questionnaire, six were members of the state boards, five were specialists, and three were state society officers (Oklahoma, Michigan, and Kansas).

1. In your recent dental law, has the feature of legal licensure of specialists proved generally satisfactory?

- a. To the general public—

Fourteen answered "yes."

- b. To the profession—

Thirteen answered "no."

One answered "questionable to the general practitioner."

2. If a dentist claims to have qualifications for special practice, do the public and the profession in your state believe in the principle that his claims to practice a specialty with safety should be examined the same as one who claims qualifications to practice general dentistry?

Thirteen answered "yes."

One answered "no."

3. What, if any, unfavorable reaction has developed in regard to the operation of the specialist's clause of your dental act?

Twelve answered "none."

One answered "a few."

One did not answer.

4. Does the profession in your state regard the minimum requirements of qualification in your law as adequate for a specialist to practice with safety?
Eleven answered "yes."
One answered "not adequate."
One answered "general practitioner, 'yes.'"
One answered "some opposition to one year of postgraduate work."
5. Has any means been suggested to better protect the public against the self-styled or pseudo-specialist whose qualifications are questionable?
Eight answered "no."
Six answered "law is adequate."
6. Are any amendments to your specialists' law contemplated?
Twelve answered "no."
One answered "a specialist can employ only those who hold a specialist's license in the same field."
One answered "requirements of three years practice, one year in the specialty."
7. What is the attitude of specialists toward legal certification?
Fourteen answered "approve."
8. Are the standards of special practices in your state rising or falling?
Twelve answered "rising."
One answered "don't know."
One answered "standing still."
9. Does legal certification of specialists tend to raise the standard of special practices?
Thirteen answered "yes."
One answered "no."
10. Does the certification of specialists in your state serve to increase the prestige of specialists?
Thirteen answered "yes."
One answered "no."
11. Does the legal certification restrict or in any way interfere with the progress of dentistry?
Fourteen answered "no."
12. Does legal licensure of specialists in your state serve to give to the public an impression of progress in dental education and a broadening concept of dentistry in general?
Twelve answered "yes."
One answered "no."
One answered "the public is not informed."
13. Do you believe the public is being better served now by those entering the specialties in dentistry through legal licensure than formerly when their qualifications were not in question legally?
Fourteen answered "yes."
14. In your state how long has the feature of your dental law providing for legal certification of specialists been in operation?

(Six answered.)

Three answered "twelve years."

One answered "seven years."

One answered "two years."

One answered "four years."

(The following questions were asked of Board members only.)

15. How many specialists are licensed in your state?

Michigan—213.

Illinois—134.

Kansas—47.

Tennessee—41.

South Carolina—8.

Oklahoma—34.

16. How many dentists have qualified under the specialist's clause since its enactment and after these, who were certified by having already been in special practice by:

- a. One year or more graduate study in recognized university.

Michigan—22.

Illinois—?

Kansas—8.

Tennessee—?

South Carolina—none.

Oklahoma—9.

- b. One year or more internship in a recognized hospital.

- c. One year or more research training in a recognized university or foundation.

- d. One or more years apprenticeship to a recognized specialist in a given branch of practice.

- e. By other means.

Answers were incomplete.

17. What percentage of your certificates were issued on?

- a. Acceptance of qualifications only.

Michigan—84 per cent.

Illinois—?

Kansas—30.

Tennessee—none.

South Carolina—all.

Oklahoma—none.

- b. Examination.

	Written	Oral	Practical
Michigan	15	15	15
Illinois	Yes	None	Yes
Kansas	17	None	17
Tennessee	All	All	All
South Carolina	Yes	Yes	Yes
Oklahoma—per cent	50	50	50

18. What percentage of applicants for special licenses failed to qualify?
- a. Because of lack of special requirements.
 - Michigan—75 per cent.
 - Illinois—very small percentage.
 - Kansas—1.
 - Tennessee—several.
 - South Carolina—none.
 - Oklahoma—5 per cent.
 - b. Because of failure in examinations.
 - Michigan—5 per cent.
 - Illinois—very small percentage.
 - Kansas—none.
 - Tennessee—none.
 - South Carolina—none.
 - Oklahoma—5 per cent.
19. Does your law provide that a dentist may be certified as a specialist and continue to practice general dentistry?
- Michigan—must devote 60 per cent of time to specialty.
 - Tennessee—do not as a rule.
 - Illinois, Kansas, South Carolina and Oklahoma answered “no.”
20. Has any court test been made on your specialists’ law?
- All six states answered “no.”

REPORT OF THE COMMITTEE ON EDUCATION OF THE SOUTHWESTERN SOCIETY OF ORTHODONTISTS

At the recent meeting of the Southwestern Society of Orthodontics, President Brooks Bell devoted the greater part of his address to the problem of orthodontic education. In addition to recommendations made in his address (which appears in this publication), he appointed the following committee: W. B. Stevenson, Chairman, W. Wayne White, Fred E. Sims, Clarence W. Koch, and George H. Herbert. Each member of the committee was to give his personal views and recommendations which were to be compiled by the chairman and presented at the meeting.

The Southwestern Society was unanimous in its approval of an amendment to our constitution and bylaws setting up minimum educational qualifications for membership in addition to those already required. They are as follows: (1) Thirty or more semester hours' graduate instruction in orthodontics in one of the universities offering this work; (2) one year or more of understudy in the office of a member of the American Association of Orthodontics.

We feel that this is a step in the right direction. Very few states have a specialty law and the orthodontic societies have no educational requirements for membership. If we are to have the respect of the dental profession and the general public, we must raise our educational standards.

W. B. STEVENSON, Chairman of the Committee on Education.

REPORT OF THE COMMITTEE FOR RECOMMENDATION CONCERNING GRADUATE AND POSTGRADUATE ORTHODONTIC EDUCATION

It is evident that whenever a dentist desires to practice orthodontics in an exclusive field or even as a major portion of his practice he must completely remodel his education.

The vast amount of knowledge that has been accumulated pertinent to orthodontics and the techniques developed in the past years makes the proper training of the orthodontic student a time-taking procedure.

At least one full calendar year is needed in a well-equipped school. Even then the student has not developed the mature judgment so strongly needed in orthodontic practice.

A period of internship would be a valuable addition. This might be taken in the school or possibly in private offices. Certain offices might be certified by the association if the standards set up by the association were met.

When a man has set himself up in the practice of orthodontics, he then needs the aid of the American Association of Orthodontists.

The American Association of Orthodontists might also encourage schools to increase their facilities for the teaching of orthodontics. A survey to estimate the number of graduates needed annually on a long-time basis and a list of schools with their possible output could be an aid in clarifying this problem.

W. WAYNE WHITE.

There must be undergraduate instruction to discover students that are interested sufficiently in orthodontics to plan to make a specialty of orthodontics.

After undergraduate courses in orthodontics, a graduate or postgraduate course in orthodontics in a recognized university should be taken.

After this graduate course has been completed, it would be well for the individual to associate himself with some practicing orthodontist for a period of not less than one year to finish out his orthodontic education. This might be worked out where a man practices three days each week in his own office and three days each week with the orthodontist with whom he is associated. During this time he should be reading and studying under the direction of the orthodontist with whom he is associated.

GEORGE H. HERBERT.

The specialty of orthodontics is a progressive biomechanical science. It has and will continue to progress in proportion to the research and teaching facilities of the profession.

Many of our outstanding practitioners have been trained in offices of competent men and then have branched out in their own practices with success. Much credit must be given them and their instructors, but we must remember that orthodontics has passed beyond the capacity of a single instructor. The science of orthodontics has so broadened that it now requires the teaching of specialists in many fields *other* than mechanical orthodontics.

The suggestion that a group of practitioners could form a nucleus of itinerant student study, spending an undetermined number of weeks in each office, has been suggested. While this would make available an avenue of training, it does not meet the requirements of orthodontic training today nor the needs of the immediate future.

Several states have state specialists' laws, Oklahoma having been one of the first to insert such a law into its dental law. The section pertaining to specialization in orthodontics requires that an applicant must have one full term of training consisting of thirty semester hours, with a Master's degree from a recognized university acceptable to the Board. He must then pass the special state board examination.

The suggestion has been made that the orthodontic departments of the universities accept students for a period of weeks where an active practitioner can attend and return to his practice and then return to the university to continue his course.

This is a step in the right direction. It may be difficult for the school to adjust its course to make the change. The difficulty in a university in rearranging the course works a hardship on the student in that he loses the continuity of his study which may work a hardship on his courses.

The following is a picture of an ideal candidate who wishes to choose orthodontics as a career:

1. He has a high school diploma.
2. He must pass satisfactorily his predental course as specified by the college of dental schools.

Presented before the Southwestern Society of Orthodontists, Dallas, Texas, Feb. 3, 1947.

3. He must be screened by the dental college of his choice and pass the four-year course. He is then qualified as a dentist and ready to be screened again by his state board.
4. To continue as a specialist he is again screened by the university to which he has applied after being recommended by two or more practicing orthodontists. If admitted, he takes the prescribed course and if successful will receive their certificate or degree.
5. Then, if the state in which he expects to practice has been modernized, he is again screened and given a special examination.

When a student has passed this kind of training, we can expect him to uphold the dignity of the profession and make a contribution to his chosen field.

FRED E. SIMS.

It is stated that two hundred fifty dentists applied at one school alone for admission to graduate study in orthodontics, and that only ten could be accommodated or, roughly, 2.8 per cent. It is also stated that this is common to all schools. On the face, this seems like a deplorable situation.

Let us look at the situation in the light of cold analogism—of the two hundred fifty dentists who applied at the school referred to, possibly many had made application to other schools.

Another factor which should give us pause is the aptitude and the sincerity of purpose of those seeking admission. It is well known that every dentist does not have the aptitude for specialization in orthodontics and, I dare say, some may be attracted to the specialty by the mirage of easy work and big money. Certainly, such applicants should be well screened when considering eligibility for admission to a graduate or postgraduate course, lest a lot of square pegs be created for round holes.

It should not be mandatory for institutions of learning to provide educational facilities for any- and everyone who seeks admission as a passing fancy or because the government in its magnanimity is willing to provide it without cost. Records of colleges reveal that many are occupying space in their halls who could, with better credit to the college and better service to themselves, follow other pursuits.

In general, as well as in our specialized field, education should be for the earnest and sincere student. Such a student has always found a way to acquire knowledge and always will. It may be trite to state there is no royal road to learning, nevertheless, sacrifice and effort are important ingredients of education in any field. So the plea here is not to be too overcome by the figures presented previously. With the transition to normalcy, the demand for graduate study too will return to more nearly normal proportions and, perhaps with but a slight enlargement of educational facilities, the demand can be met.

The suggested modifications of graduate orthodontic training are worthy of careful consideration. I am sure they are submitted only as an approach to the problem, not as a solution.

To arrive at a solution would require a consideration broader in scope and the acquirements of many more facts than are available at this time. So for the present the status quo seems in order.

CLARENCE W. KOCH.

In Memoriam

BURT ABELL

1864—1947

BURT ABELL, for thirty-four years the pioneer orthodontist in Toledo, Ohio, until his retirement in 1939, died in St. Cloud, Florida, on May 5, 1947.

Burt Abell was born near Battle Creek, Michigan, Sept. 7, 1864. He was reared on a farm and worked his way through school, attending the Battle Creek public schools and Ypsilanti State Normal College. He was graduated from the University of Michigan in 1892. After practice in Elk Rapids and Albion, Michigan, he pioneered in the field of orthodontics, being graduated in the second class at the Angle School of Orthodontics, in St. Louis.

He settled in Toledo, Ohio, in 1905 and practiced orthodontics when the specialty was new and untried.

He was president of the Toledo Dental Society in 1908; President of the American Society of Orthodontists in 1923, and a founder of the Great Lakes Society of Orthodontists.

He is survived by his wife, May Woodlin Abell, whom he married in 1888; a daughter, Mrs. Ruth Watkins, of Chicago; and a son, Major D. S. Abell with the UNRRA in Shanghai.

Dr. Abell was another of the original little handful of men who, under the guiding hand of Dr. Angle, pioneered the specialty of orthodontics. He will long be remembered as a wholesome, honest, sincere man—a religious man of deep convictions, who was highly respected in his profession and by all who knew him.

Department of Orthodontic Abstracts and Reviews

Edited by

DR. J. A. SALZMANN, NEW YORK CITY

All communications concerning further information about abstracted material and the acceptance of articles or books for consideration in this department should be addressed to Dr. J. A. Salzmann, 654 Madison Avenue, New York City

Psychobiologic Foundations in Dentistry: By Edward J. Ryan, B.S., D.D.S., Springfield, Ill., Charles C Thomas, 1946, Pp. 131.

Dr. Ryan offers a clear, unconstrained, and understanding summary on a subject both unknown in the dental curriculum and unfamiliar in the dental literature, but, nevertheless, of paramount importance.

In order for the dentist to establish satisfactory dentist-patient relationship, he should realize what can occur to the body of man when his mind is disturbed, or vice versa. The psychobiologic approach to the dental problem does not intend to change or substitute methods for dental procedures. Instead, it is supportive, supplementary, and offers an opportunity to enlarge the concept of the dentist, and, also, to broaden the base upon which successful dentistry can be practiced. Whatever information the dentist has about the patient as a person, and whatever understanding he has of the "man within the patient" will be valuable in clinical practice. The average dentist is so accustomed to thinking in terms of mechanical, chemical, and physical causation that he has no place in his thought processes to accommodate the theory of psychogenesis in disease, particularly those diseases which he always treated by the orthodox methods. However, sufficient evidence is available to prove the existence of neurologic pathways over which emotions can find expression to produce somatic disease.

Bodily changes can be brought about by mental stimuli and by emotions just as effectively as by bacteriae and toxins. The hypothesis is suggested that mouth diseases like dental caries, periodontal disease, etc., can be initiated or aggravated by irritations arising from the hypothalamus, as the dental and oral tissues, like all others, are under the influence of the autonomic nervous system.

Campbell has written on this subject: "Experimental observations have demonstrated that the pH, the viscosity of saliva and to some extent the mineral constituents may be altered under the influence of rage, fear, or pleasure. Calcium and other ionized salts of the body fluid are affected by emotional states as well as the blood's cells. Faulty mouth habits have been repeatedly demonstrated to be the expressions of attitudes such as repressed rage or fearful dependency." Allan and Portis show that fatigue state is, in the greater number of cases, the result of heavy emotional expenditure.

To practicing dentists, Dr. Ryan suggests "to think in psychosomatic terms, and to integrate this point of view with their other treatment methods." The author makes a review of Sheldon's theory that "the shape of a man promises certain traits in his character" and subsequent division of persons according to somatic types. He goes further in analyzing the different psychobiologic problems with which the practicing dentist comes in contact when dealing with patients of different ages, environment, and economic levels.

This book offers a timely philosophy of dental practice, and should prove most helpful for those who wish to gain further knowledge about the inherent constitutions that man brings with him to the dental chair.

Index to Dental Literature in the English Language: Including one hundred and twenty-six periodicals from Australia, Canada, England, India, South Africa, and the United States. Three years, 1942-1944. An alphabetical subject and author index. A list of dental books. Chicago, Ill., The American Dental Association, 1946. Committee on library and indexing Service of the American Dental Association. John E. Gurley, D.D.S., Chairman; Josephine P. Hunt, Librarian and Secretary; C. E. Haverstick, D.M.D.; Alice M. McCann, A.B.; Robert G. Kisel, D.D.S., M.S.; Hilda M. Rankin; T. D. Speidel, D.D.S., M.S.; Margaret Gayly Palmer, A.B., B.S.; Index by Flora B. Mann and Martha Ann Mann.

The current issue of the Index is arranged according to a greatly extended and carefully edited set of subject headings. One hundred and twenty-six publications are listed in full or in part. Periodicals printed outside the United States are also included. The Index no longer follows the Dewey Decimal System of classification and so lends itself to easier reference by persons who are not fully acquainted with the Dewey System. Listings are made according to subjects as well as authors. Subheadings have been provided for more detailed classifications of subjects. Adequate cross references have been included. The Index lists original editorials and abstracts. Dentists interested in articles on their favorite subjects will find here a book of ready reference. To teachers, students, and those assaying to write scientific articles the Index is indispensable.

The Genesis of Dental Education in the United States: By Broadus Dalton, D.D.S., member of The American Society of Oral Surgeons, associate member of the Academy of Medicine of Cincinnati, Ohio, author of "Essentials of Orthodontia." Columbus, Ohio, Glenn Company, 1946.

The origin of dental education in the United States is usually accepted to have taken place in Baltimore. In this volume, Doctor Dalton brings out the fact that formal dental education in the United States and in the world was brought to birth and cradled in the little village of Bainbridge, Ohio, in the Fall of 1827, by Doctor John Harris, an older brother of Chapin A. Harris.

An account is presented of the career of Chapin A. Harris and his activity in the founding of the first dental school. Dalton considers the year 1825 to 1845 the greatest twenty years in dental history. It was during this time that anesthesia was introduced, the College of Oral Surgery in Baltimore was founded, and great progress was made in the mechanics of dentistry.

It is seldom that one hears the Society of Surgeons of Dentistry of the city and state of New York, founded in 1834, referred to as the First Dental Society in the world. It is to be regretted that the annals of dentistry in New York City have not yet found the attention of a historian. Those who feel that dental society postgraduate activities are of recent origin would be interested in knowing that the objects of the New York Society in 1834, as set forth in its constitution, include the advancement of "the Science by free communication and interchange of sentiments either written or verbal between members of the Society both in this and other countries."

This book lays great stress on the contributions of Ohio dentists in the building of the dental profession from its educational and organizational standpoints. An interesting account is presented also on the organization of the

American Society of Orthodontists by Edward H. Angle. A chronology of dental periodical literature is presented. This volume is a source book on the genesis of dental education and organization in the United States, especially in the state of Ohio.

Annual Review of Physiology: Victor E. Hall, Editor, Stanford University. Jefferson M. Crismon, Associate Editor, Stanford University, Arthur C. Giese, Associate Editor, Stanford University. Volume 9. Price, \$6.00. Stanford University, California, Annual Reviews, Inc., 1947.

Since 1939 Annual Reviews, Inc., has presented a survey of significant developments in physiology throughout the world. Many of the researches in physiology carried on during the war are now reviewed for the first time. Throughout, the material has been carefully selected from the standpoint of scientific validity. A bibliography of seventy-nine articles on growth is presented. Special mention is made of an article by Thoma and Goldman on the growth of ontogenetic tumors.

Growth aberrations in relation to vitamin deficiencies according to recent contributions to the literature have now been definitely established. Animals cease growing when deprived of a source of sulfur as found in the amino acids in the B vitamins. Methionine, along with cystine, is mentioned as a prime growth-promoting substance. It seems that the absence of free methyl in diet is connected with the tissue overgrowth in the liver. Changes in the development of embryos have been found to follow the introduction of chemical agents which interfere with the usual position of the embryo in utero. A full account of the properties of anterior pituitary, the growth hormone, is presented for review. The effect of exercise on muscles and bones is reviewed and contributions on the subject are listed.

Human Embryology (Prenatal Development of Form and Function): By W. J. Hamilton, M.D., D.Sc., F.R.S.E., Regius Professor of Anatomy in the University of Glasgow, Formerly Professor of Anatomy in the University of London at the Medical College of St. Bartholomew's Hospital. J. D. Boyd, M.A., M.Sc., M.D., Former Fellow of Clare College, Cambridge; Professor of Anatomy in the University of London at the Medical College of the London Hospital, and H. W. Mossman, M.S., Ph.D., Associate Professor of Anatomy in the University of Wisconsin. Pp. 366. Price, \$7.00. Baltimore, Williams & Wilkins Company, 1945.

This volume correlates the development of form and function in the embryo. A brief summary of comparative vertebrate development is given. Although this is a British publication, much of the material is based on publications of the Laboratory of Embryology of the Carnegie Institute of Washington, D. C. Organogenesis of special interest to dentists and orthodontists is presented and developmental mechanics are discussed. What an organism becomes in the course of development, say the authors, is the resultant of two factors: heredity and environment. The characteristics of an adult are produced by the interaction between the genetic factors and the environmental ones. With regard to form and function, it is pointed out that the functional influence does not replace the genetically established pattern of development. However, the effect of function on an organic is considerable.

Development of the face begins during the second month and is dominated by changes in the formation of the nose. The formation of the face and primitive mouth is described. Most abnormalities of development, it is pointed out

by the authors, can be attributed to genetic causes, while environmental abnormal causes act as teratogenetic agents and affect various processes of development.

An extremely interesting account of the development of the roof of the mouth, palate, floor of the mouth, tongue, lips, cheeks, and gums is presented. In the chapter on osteogenesis, explanations are provided on the development of intramembranous and endochondral ossification. Throughout, the illustrations present a high degree of clarity. References are provided to the important contributions on the subject of embryology in recent years. A detailed index makes this book especially valuable for reference purposes.

Bone and Bones. Fundamentals of Bone Biology: By Joseph P. Weinmann, M.D., College of Dentistry, University of Illinois, formerly, School of Dentistry, Loyola University, Chicago, and Harry Sicher, M.D., School of Dentistry, Loyola University, Chicago. With 289 illustrations. St. Louis, The C. V. Mosby Company, 1947.

This volume is the result of the collaboration of a pathologist, Weinmann, and an anatomist, Sicher. Both of these men are outstanding experts in their respective fields. The quality of the book is such as those who know the ability of the authors would expect from them. Weinmann and Sicher call on their wealth of knowledge and experience in the presentation of the material in this volume.

Under normal growth and structure of bone and bones are presented accounts of the structural elements, arrangement, development, and growth of bone tissue. In the part dealing with pathology of bone and bones, bone being regarded as tissue and bones as organs, discussion is provided on developmental disturbances of the skeleton, the influences of the endocrine glands, vitamins and minerals on bone formation and growth of the bone. Pathologic conditions of the bones are discussed and illustrated. The question of skull growth is considered, presenting briefly the phylogenetic, ontogenetic, and functional points of view. "The single fact," say the authors, "that the bony capsule of brain is inseparately linked with the masticatory facial skeleton and that these two parts of the skull are integrated into one anatomic and biologic unit accounts for many complications." These complications originate in the fact that while the cranium is dependent upon the brain, the masticatory skeleton is, to a greater extent, dependent upon muscular influences, dentition, and the growth of the tongue. Growth of the skull is presented under growth of the cranial superstructures, the facial skeleton and tooth eruption. A functional analysis of the facial skeleton is presented and the reaction of the bone pressure and retention is considered.

Part II on pathology of bone and bones includes developmental and adaptional disturbances and deformities of the skeleton; the influence of the endocrines, vitamins, and minerals on bone and bones, as well as the various inflammatory neoplastic conditions found in bones. The photomicrographic illustrations of anatomic portions by means of halftones and drawings are excellent. An extensive bibliography and a detailed index enhance the value of the book for the student and practitioner of general dentistry and the orthodontist.

News and Notes

Central Section, American Association of Orthodontists

The Central Section, a constituent of the American Association of Orthodontists, held its first scientific meeting at the Radisson Hotel, Minneapolis, Minnesota, on Monday and Tuesday, April 14 and 15, 1947. The meeting was a genuine success in every way. Registered attendance was 161, of which thirty-seven were nonmembers of the American Association of Orthodontists. With members from Canada and a guest from Argentina, South America, the attendance was international in scope. Also, about thirty ladies were present, and they enjoyed a complimentary dinner Monday evening at the Minneapolis Athletic Club.



Father and son at the Central Section of the American Association of Orthodontists' meeting in Minneapolis, Minnesota, left to right, William F. Ford and Jas. W. Ford. (Photo Asher.)



Snapshot at the Central Section of the American Association of Orthodontists' meeting in Minneapolis, Minnesota, April 14 and 15, 1947, left to right, C. S. Foster, Section President, R. C. Willett, and Chas. R. Baker, Program Chairman. (Photo Asher.)

Under the capable direction of President C. S. Foster of Cedar Rapids, Iowa, the meeting was conducted faultlessly and according to schedule. A unique feature was having the luncheons served in the meeting room. A fifteen-minute recess before and after luncheons provided time for the hotel employees to take care of the situation. This plan provided excellent meals on time and at no inconvenience to the members. Tickets for the luncheons and dinner were purchased at time of registration.

After an address of welcome by Dr. Dan Clark, President-Elect of the Minneapolis District Dental Society, and a brief message from President Foster, the following program was presented:

Monday, April 14, 1947

"Observations on Certain Aspects of Current Orthodontic Practice." Bernard G. de Vries, Minneapolis, Minnesota.

"Mandibular Prognathism." Carl W. Waldron, Minneapolis, Minnesota.

"Two Failures Showing the Results of Orthodontic Treatment." Howard E. Strange, Chicago, Illinois.

Luncheon.

"The Orthodontic Program of the Michigan State Department of Health, With a New Classification of Occlusion for Survey Purposes." George R. Moore, Ann Arbor, Michigan, guest speaker.

"Assumptions Concerning Orthodontic Diagnosis and Treatment." L. Bodine Higley, Iowa City, Iowa.

"Treatment of Impacted Cuspids." Henry F. Westhoff, St. Louis, Missouri.

"The Value of Predetermined Arch Dimensions and Form 'Setups' as a Diagnostic Aid in Orthodontic Treatment Planning and Post-treatment Maintenance." Howard Yost, Grand Island, Nebraska.

Dinner was served in the near-by Italian room. This was a very pleasant occasion. Our guest, Dr. H. B. Washburn, President-Elect of the American Dental Association, gave an interesting and instructive talk on some features of A. D. A. activities. Dr. Lon W. Morrey, Editor of the *Journal of the American Dental Association*, Dr. Harold Hillenbrand, Secretary of the American Dental Association, and Dr. Jorge A. Bisi of Argentina, South America, were introduced.

During the dinner hour, the local committee arranged for the clinic program in the Gold room. Then the clinicians were given fifteen minutes to set up their clinics and exhibits, after which the membership entered to find a splendid array of clinics, well-lighted and with suitable placards. Twenty-nine excellent clinics and exhibits were presented by thirty-five clinicians, twenty of which represented five dental colleges.

"Orthodontic Photography Simplified." Maurice C. Berman, Chicago, Illinois.

"Thirty Years After." J. A. Burrill, Chicago, Illinois.

"Plastic Facial Prosthesis." A. C. Fonder, Winnetka, Illinois.

"Case Reports." Lawrence B. Gilling, Green Bay, Wisconsin.

"The Use of Overlays in Impactions." Eva R. Hastings, Des Moines, Iowa.

"Facial Changes in Orthodontic Treatment." B. L. Herzberg, Chicago, Illinois.

"Temporary Orthodontic Replacements for Anterior Teeth." Paul G. Ludwick, Lincoln, Nebraska.

"A Different Type of Retaining Appliance Where the Upper First Bicuspids Have Been Extracted." Cecil G. Muller, Omaha, Nebraska.

"Orthodontic Results of the Use of Light Intermittent Force Applied With Occipital Anchorage." Beulah G. Nelson, Oak Park, Illinois.

"A Series of Case Reports Indicating Where the Relapse Will Occur and Cases Where a Relapse Has Occurred After Retention Has Been Removed." Howard E. Strange, Chicago, Illinois, and E. H. Borgerding, Chicago, Illinois.

"A Psychological Approach to the Correction of Habits Resulting in Malocclusion." David J. Thompson, Elmhurst, Illinois.

"An Adjustable End-Tube Lock on the Johnson Twin Wire Appliance." M. Lucile Vye, Minneapolis, Minnesota.

"Mandibular Prognathism, Demonstration Casts, Face Moulages, etc." Carl W. Waldron, Minneapolis, Minnesota, and Ralph G. Peterson, Minneapolis, Minnesota.

University Dental Schools.—

University of Minnesota College of Dentistry. Department of Orthodontics:

"Résumé of Undergraduate Orthodontic Treatment." C. E. Rudolph, Max E. Ernst, Henry E. Colby, E. T. Thompson, and D. W. Thomas.

"Résumé of Graduate and Postgraduate Orthodontic Treatment." C. E. Rudolph and S. R. Steadman.

Chicago College of Dental Surgery; Dental Department, Loyola University. Department of Orthodontics:

"Stainless Alloy in Appliance Construction." J. J. Vlk.

"An Oral Anomaly." Richard C. Thomstz.

University of Michigan School of Dentistry. Department of Orthodontics:

"An Adjustable Stop for the Twin Wire End Tube." (Designed by G. V. Barrow.) William S. Brandhorst.

"A Sliding Intermaxillary Hook and Some Adjustments of the Twin Wire Mid-section." (Designed by George R. Moore.) Walter M. Jaconsen.

"Progress Exhibits of Cases Under Treatment in Sturgis School Project." Kenneth C. Marshall, and George R. Moore.

"Unusual Cases." (A case of complete anodontia; a case having permanent canines only.)

Northwestern University Dental School. Department of Orthodontics:

"Functional Analysis of Class II Malocclusion." T. M. Graber.

"Experimental Depression of Human Teeth." William F. Ford.

"Indications and Contraindications for Use of the Inclined Bite Plane to Correct Lingual Occlusion of Maxillary Incisors." Russell K. Ephland.

Washington University School of Dentistry. Department of Orthodontics:

"The Etiology of Facial Form." O. W. Brandhorst.

"The Treatment of Severe Mesio- and Distocclusion." E. W. Bedell.

"Aglossia—A Report of Findings." E. E. Shepard.

"Habits and Their Effects." E. C. Bean.

"The Effects of Premature Loss." I. L. Staley.

Tuesday, April 15, 1947

"Details of Management Conducive to Better Service and Patient-Clientele Relationship." Leonard P. Wahl, Wausau, Wisconsin.

"Rational Procedure in Orthodontic Treatment." G. Vernon Fisk, Toronto, Canada, guest speaker.

Business Session.

Luncheon.

"Early Recognition of Certain Deviations From Normal Dentition, and Applied Therapy." R. C. Willett, Peoria, Illinois.

"The Functional Analysis of Malocclusion of the Teeth." John R. Thompson, Chicago, Illinois.

"A Class I Case With Blocked-out Mandibular Second Premolars." Arthur C. Rohde, Milwaukee, Wisconsin.

There were many complimentary expressions regarding the program. Two full days and one evening of practical orthodontics were the result of splendid cooperation of those who contributed to the program, the officers, committees, and membership. The efficient work of the Arrangements Committee and the hotel management deserve special mention.

Southern Section, Pacific Coast Society of Orthodontists

The regular quarterly meeting of the Southern Section of the Pacific Coast Society of Orthodontists was held on Friday, June 20, 1947, at the University Club, 614 South Hope Street, Los Angeles, California.

The program chairman for the day was Dr. Cecil Steiner. The program presented follows:

AN ORTHODONTIC SYMPOSIUM

Impressions and Models. Merton E. Hill, Jr., John B. Wilson; Howard M. Lang, Chairman.

Installation for Efficient Operation of the Angle Edgewise Mechanism. Betty Selmer; Matthew C. Lasher, Chairman.

Prefabrication of Ideal Arches. Herbert L. Shannon, L. Scroggs Singleton; George C. Chuck, Chairman.

Instrumentation and Manipulation of the Angle Edgewise Mechanism. Fred J. Angel; Cecil C. Steiner, Chairman.

Diagnosis and Treatment of Malocclusion. Hays N. Nance.

Retainers. W. Mahlon Adams, Malcolm McKenzie; John M. Griffin, Chairman.

Case Reports. Betty Selmer.

Evening Session. Clinical demonstrations and round-table discussions of subjects presented at the afternoon session.

Great Lakes Society of Orthodontists

The eighteenth annual meeting of the Great Lakes Society of Orthodontists will be held Oct. 27 and 28, 1947, at the Royal York Hotel, Toronto, Canada.

The two-day meeting will feature the following essayists:

Dr. Wendell Wylie, San Francisco, California.

Dr. W. B. Downs, Chicago, Illinois.

Dr. Andrew Jackson, Philadelphia, Pennsylvania.

Northeastern Society of Orthodontists

The next meeting of the Northeastern Society of Orthodontists (formerly New York Society of Orthodontists) will be held at the Waldorf-Astoria Hotel, New York, on Monday and Tuesday, Nov. 10 and 11, 1947.

Seminar for the Study and Practice of Dental Medicine

The fourth annual seminar for the study and practice of dental medicine will be held at the Ahwahnee Hotel in Yosemite, California on Oct. 19 to 24, 1947, approved by all the Pacific Coast State Dental Associations from southern California to British Columbia.

The program follows:

Sunday, October 19

Dr. Edwin McMillian: "Application of Nuclear Physics in Biology and Medicine."

Monday, October 20

W. Albrecht: "Climate, Soil and Health." I. "Climatic Soil Pattern and Food Composition." II. "Managing Health Via the Soil."

L. Newburgh: "Definition and Measurement of Energy Balance in the Animal Organism," and "Man's Energy Requirements."

Presentation of case reports.

I. Schour: "Development and Growth of Teeth." I. "Early Stages—Initiation, Proliferation, Histodifferentiation, and Morphodifferentiation." II. "Late Stages—Apposition and Calcification."

Tuesday, October 21

J. Youmans: "Nutrition: Growth and Development." "Nutrition: Function, Maintenance, and Repair."

H. Lewis: "Biological Functions of Proteins." I. "The Functions of Proteins in the Living Organism." II. "The Role of Protein in Human Nutrition."

Colored motion picture film: "Energy Release from Food."

A. Brodie: "On the Growth of the Human Head." "The Eruption of the Human Dentition as Related to the Growth of the Jaws."

Wednesday, October 22

G. Rapp: "The Mechanism of Enzyme Action." "An Enzymic Theory of Local Anesthesia."

T. Francis: "Viruses as Agents of Disease." "The Control of Virus Diseases."

Presentation of case reports.

Discussions of presentations of Drs. Albrecht, Newburgh, and Schour.

Thursday, October 23

Discussions of presentations of Drs. Youmans, Lewis, Rapp, Francis, and Brodie.

Friday, October 24

Advisory Council Meeting.

Prize Essay Contest, American Association of Orthodontists

Eligibility.—Any member of the American Association of Orthodontists, any person affiliated with a recognized institution in the field of dentistry and/or allied or affiliated institutions or fields as a teacher, researcher, undergraduate, or graduate student shall be eligible to enter the competition.

Character of Essay.—Each essay submitted must represent an original investigation and contain some significant material of value to the art or science of orthodontics.

Prize.—A cash prize of \$500.00 is offered for the essay judged to be the winner. The committee, however, reserves the right to omit the award if in its judgment none of the entries is considered to be worthy. Honorable mention will be awarded to those authors taking second and third place. The first three papers will become the property of the American Society of Orthodontists and will be published. All other essays will be returned.

Specifications.—All essays must be typewritten on 8½ by 11 white paper, double spaced, with 1-inch margins, and composed in good English. Three copies of each paper, complete with illustrations, bibliography, tables, charts, etc., must be submitted. The name and address of the author must not appear in the essay. It should be typed on a separate sheet of paper and clipped to the essay. This same sheet should bear a brief biographical sketch of the author, setting forth his or her dental and/or orthodontic or other trainings, present activity and status (practitioner, teacher, student, research worker, etc.).

Presentation.—The author of the winning essay will be invited to present it at the meeting of the American Association of Orthodontists to be held at Columbus, Ohio, in April, 1948.

Final Submission Date.—No essay will be considered for this competition unless received in triplicate by the Chairman of the Research Committee, American Association of Orthodontists, 30 North Michigan Avenue, Chicago 2, Illinois, on or before Jan. 15, 1948.

ALLAN G. BRODIE, CHAIRMAN, RESEARCH COMMITTEE.

Northwestern University

The graduate department of orthodontics of Northwestern University Dental School recently presented a seminar in orthodontics on Tuesday and Wednesday, April 29 and 30, 1947.

Attendance was limited to the former graduates of the department. Thirty-three orthodontists representing forty-one per cent of all of the former graduates were present.

The guests were: Dr. Allan G. Brodie, Professor of Orthodontics, University of Illinois, Dr. Frederick B. Noyes, former Professor of Histology, Northwestern University, and Dr. Charles R. Baker, former Professor of Orthodontics, Northwestern University.

The program follows:

Tuesday, April 29

9:00, "Teeth and Bone." Dr. Harry Sicher, Professor of Anatomy and Histology of Loyola University, Dental School; guest lecturer, Graduate Department of Orthodontics Northwestern University Dental School.

10:30, "Orthodontic Limitations, Mixed Dentition Diagnosis and Treatment." Dr. Hays Nance, Lecturer, Division of Orthodontics, College of Dentistry, University of California.

2:00, "Functional Analysis of Malocclusion." Dr. John R. Thompson, Chicago, Illinois.

3:30, Round-table discussions: 1. Treatment of Cases in Which Dental Units Are Absent or Removed. Dr. Howard J. Buchner. 2. Bite Plate and Bite Plane Treatment. Dr. John R. Thompson.

8:00, "Growth of the Mandible and the Temporomandibular Articulation." Dr. Harry Sicher.

Wednesday, April 30

9:00, "Facial Balance." Dr. William B. Downs, Associate Professor of Orthodontics, University of Illinois, College of Dentistry.

10:30, "Orthodontic Limitations, Permanent Dentition Diagnosis and Treatment." Dr. Hays Nance, Pasadena, California.

1:30, "Case Analysis and Treatment Planning," Dr. William B. Downs, Oak Park, Illinois.

3:00, Case reports by staff members:

1. Dr. Fredrich Barich
2. Dr. Richard A. Smith
3. Dr. Waldo Urban

5:00, Round-table discussions of orthodontic problems submitted by seminar participants graduate orthodontic staff.

Dinner: Speakers, Dean Charles W. Freeman, and Dr. Wilton W. Krogman, "An Anthropological Viewpoint of Orthodontic Problems."

University of Illinois

The University of Illinois College of Dentistry will offer two new refresher courses in "Complete Denture Prosthesis" and "Crown and Bridge Prosthesis" starting July 7.

Dr. Isaac Schour, Associate Dean of the College in Charge of Postgraduate Studies, announced that each course will be of four weeks' duration. Classes will be conducted from 9 A.M. to 5 P.M., Monday through Friday.

Dr. W. H. Kubacki, Professor of Prosthetic Dentistry, and his staff will instruct the course in "Complete Denture Prosthesis." The second course, "Crown and Bridge Prosthesis," will be taught by a staff headed by Dr. S. D. Tylman.

Dr. Schour disclosed that enrollment would be limited to six in each class. The courses will be offered by the University under the provisions of the G. I. Bill of Rights.

A twelve-week refresher course covering almost every field of dentistry will be offered starting September 8. The course will be available in its entirety or in special units.

Orthodontist-Explorer

Two articles on "Brazil Opens the West" by Dr. Harry B. Wright, who practices orthodontics in Philadelphia, were published in the *Saturday Evening Post* for March 15 and March 22. These articles were illustrated by Dr. Wright's own photographs and present an eye-witness account of Brazil's history-making Roncador-Xingu expedition. Last summer, Dr. Wright, who holds membership in the American Society of Physical Anthropologists, American Anthropological Association, and the Explorers' Club, was invited by Sr. Joao Alberto Lins de Barros, the then Minister of Immigration and President of the Central Brazil Foundation (now President of the Municipal Council of Rio de Janeiro), to join the Roncador-Xingu Expedition which, composed of scientists, engineers, and army men, has for three years been exploring the great Matto Grosso, the last and largest unmapped and unexplored part of the world. In "the world's last great civilizing thrust" in spite of hostile Indians,

hunger, tropical disease, and deadly reptiles, the expedition has advanced a thousand miles into the interior, building roads and airfields and establishing field hospitals and radio stations. Towns spring up in its route. Land is being prepared for immigration of Brazilians and some of the displaced persons of Europe. Dr. Wright is accredited by Brazil with the distinction of being the first North American to have reached the almost legendary Tanguro River, the outermost camp of the expedition, going in by boat and light plane. He spent seven weeks with the expedition. On his return from the interior, he addressed the Brazilian Society of Orthodontists, giving an illustrated talk entitled "The Etiology and Treatment of Certain Malocclusions of the Teeth." Later, in Sao Paulo, he addressed the class in orthodontics at the School of Dentistry.

American Dental Association—Annual Meeting

The largest number of scientific and health exhibits ever gathered for an annual meeting of the American Dental Association will be displayed at the eighty-eighth annual American Dental Association meeting at Boston, Aug. 4 to 8, 1947.

Nearly one hundred different exhibits portraying major scientific advances in dental science will be included in this year's scientific and health section at Mechanics Building, according to Dr. Leo F. Marre, of St. Louis, Missouri, Exhibit Chairman.

In the basic science exhibit there will be displays of laboratory research that has been conducted in recent years in the biologic, chemical, metallurgical, physical, pharmacologic, and similar fields. In the clinical science section will be displays illustrating clinical application of techniques and materials used in the cure, correction, and prevention of dental disease.

The health and education section will include historic and educational displays showing both lay and professional material, programs and procedures concerning both general and dental health.

Prizes will be awarded to the outstanding exhibits prepared by organizations and individuals in each classification.

The 1947 exhibit is the first to be sponsored by the American Dental Association in six years and is expected to attract a new record attendance.

American Board of Oral Surgery

Acting under authority of the House of Delegates, the Council on Dental Education of the American Dental Association has given full recognition and approval to the newly formed American Board of Oral Surgery.

Dr. Howard C. Miller, of Chicago, is president of the new board. Other members are Drs. Carl W. Waldron, of Minneapolis, Minnesota, Vice-President; Leslie M. FitzGerald, of Dubuque, Iowa, Secretary-Treasurer; and Frank B. Hower, of Louisville, Kentucky, Athol L. Frew, of Dallas, Texas, Aubrey L. Martin, of Seattle, Washington, and James R. Cameron, of Philadelphia, Pennsylvania.

The Board has appointed an Advisory Board consisting of: Drs. Donald H. Bellinger, of Detroit, Michigan, Orlan K. Bullard, of San Diego, California, Malcolm W. Carr, of New York City, New York, Thomas Conner of Atlanta, Georgia, J. Orton Goodsell, of Saginaw, Michigan, Stephen P. Mallett, of Boston, Massachusetts, and Douglass B. Parker, of New York City, New York, who will cooperate with the Board members in the Certification of applicants and in the direction of the affairs of the Board.

The Board has already conducted examinations and has certified a number of specialists in oral surgery. Additional examinations will be conducted during the latter part of July at Boston, just prior to the eighty-eighth annual meeting of the American Dental Association there Aug. 4 to 8, 1947, and in Chicago in November.

Oral surgery is the first of the dental specialties for which an examining board has been approved. It is anticipated that applications for approval of boards in orthodontics, pedodontia, periodontia, and prosthodontia will be received shortly by the Council on Dental Education.

The seven members of the American Board of Oral Surgery were elected for terms of from one to seven years each. One new director will be elected annually for a seven-year term. Applications for examination and certification as a specialist in oral surgery are now being received by Dr. L. M. FitzGerald at 718 Roshek Building, Dubuque, Iowa.

Taft-Smith-Ball-Donnell National Health Bill

Washington, D. C., May 29.—A general endorsement of the objectives of the Taft-Smith-Ball-Donnell national health bill was made here today by a spokesman for the American Dental Association.

Dr. Carl O. Flagstad, of Minneapolis, Minnesota, Chairman of the American Dental Association's legislative committee, told the Senate Committee on Labor and Public Welfare that the dental profession favors federal grants-in-aid to the states for operation of programs designed to improve the dental health of the people, particularly children.

Dr. Flagstad, however, suggested several changes in the over-all health bill which proposes to allocate \$1,000,000 for a nation-wide survey of dental needs of the population plus graduated annual appropriations of from eight to twenty million dollars over a five-year period for dental examinations of all public and nonpublic school children.

The bill also authorizes the states to provide necessary dental care for school children and other individuals and families unable to pay the whole cost of such care.

Funds should also be made available for programs of dental health education of both children and adults, Dr. Flagstad said. He said that the entire program would be "more effective" if efforts are made to motivate people to take care of their teeth and their children's teeth through dental health education programs.

Dr. Flagstad praised provisions calling for the establishment of a national dental research institute as one of the "most important" features of the bill.

The dental spokesman agreed with the bill's proposal to coordinate all health activities of the federal government and urged that the Congress create a department of health with cabinet status.

"The health of the nation is of such paramount importance that it should occupy the place of greatest prominence in our government," he said. "It is desirable for the director of our health activities to have direct access at all times to the President of United States and to participate in the deliberations of the President's cabinet."

In endorsing general provisions of the Taft bill, Dr. Flagstad reiterated the dental association's opposition to compulsory health insurance.

Notes of Interest

Ribert M. Blink, M.Sc.D., announces the opening of his offices at the Majestic Building, 231 W. Wisconsin Avenue, Milwaukee 3, Wisconsin, practice limited to orthodontics.

Dr. J. A. Gorman announces the association of Dr. E. R. McCallon, Jr., in the exclusive practice of orthodontics, Maison Blanche Building, New Orleans, Louisiana.

Dr. Irving Katzman announces the opening of his office at 1417 Temple Building, 14 Franklin Street, Rochester, N. Y., practice limited to orthodontics.

Kenneth C. Marshall, D.D.S., M.S., announces the opening of his office at 5899 Delmar Boulevard, St. Louis, Missouri, practice limited to orthodontics.

Dr. James David McCoy announces that he has discontinued his Los Angeles office and is conducting full-time practice at 405 North Bedford Drive, Beverly Hills, California.

William E. Nelson, D.D.S., M.S., announces the opening of his offices located at Main and Farwell Streets, Eau Claire, Wisconsin, practice limited to orthodontics.

The Cody Dental Group announces that after April 1, 1947, it will occupy its new offices on East Sixteenth Avenue at Humboldt Street, Denver, Colorado (1325 East 16th Avenue). Staff: Dr. L. Glenn Cody, Dr. Harold L. Harris, Dr. Kenneth F. Grove, Dr. William E. Cody, Dr. Josephine M. Frey, Dr. William H. Hiatt, Dr. Robert K. Benkelman, and Kathleen Riley, D.H.

Milo Hellman**1872—1947**

Milo Hellman, orthodontist, anthropologist, and teacher, died in Far Rockaway, New York, after suffering a cerebral hemorrhage.

Professor of Dentistry at Columbia University's School of Dental and Oral Surgery, Dr. Hellman was a research associate in physical anthropology at the American Museum of Natural History.

He retired from the practice of orthodontics early in 1942 to devote himself entirely to research and teaching.

Working with Dr. Gregory back in 1924, Dr. Hellman had exhibited three fragments of ancient jawbones supposed to belong to the *Dryopithecus*, or forest ape, which lived in the Siwalik Hills in India several million years ago. They came to the conclusion that the *Dryopithecus* was man and the gorilla's lineal forebear.

Dr. Hellman formerly served on the faculties of Harvard, Pennsylvania, and New York Universities. He was graduated from the University of Pennsylvania in 1905. He took graduate work at the Angle School of Orthodontia in New York, and in 1908 began to practice orthodontics.

In 1939, the American Board of Orthodontics awarded to him the Albert H. Ketcham Memorial Award for a leading contribution to the science and art of orthodontics. He also was the recipient of honorary Doctor of Science degrees from Pennsylvania University and the Witwatersrand University in Johannesburg, South Africa.

Dr. Hellman leaves three daughters, Mrs. William T. Sandalls and Mrs. John L. Bull, Jr., of Far Rockaway, and Miss Doris Hellman of Hollywood, California; a brother, Leo Hellman of Hollywood; and two grandchildren. His wife, Helen Michelson Hellman, died in 1936.

Suitable memorial mention will be made of Dr. Hellman's life and works in a forthcoming issue.

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The AMERICAN JOURNAL OF ORTHODONTICS AND ORAL SURGERY is the official publication of the American Association of Orthodontists and the following component societies. The editorial board of the AMERICAN JOURNAL OF ORTHODONTICS AND ORAL SURGERY is composed of a representative of each one of the component societies of the American Association of Orthodontists.

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In the January issue each year, the AMERICAN JOURNAL OF ORTHODONTICS AND ORAL SURGERY will publish a list of all of the orthodontic societies in the world of which it has any record. In addition to this, it will publish the names and addresses of the officers of such societies.